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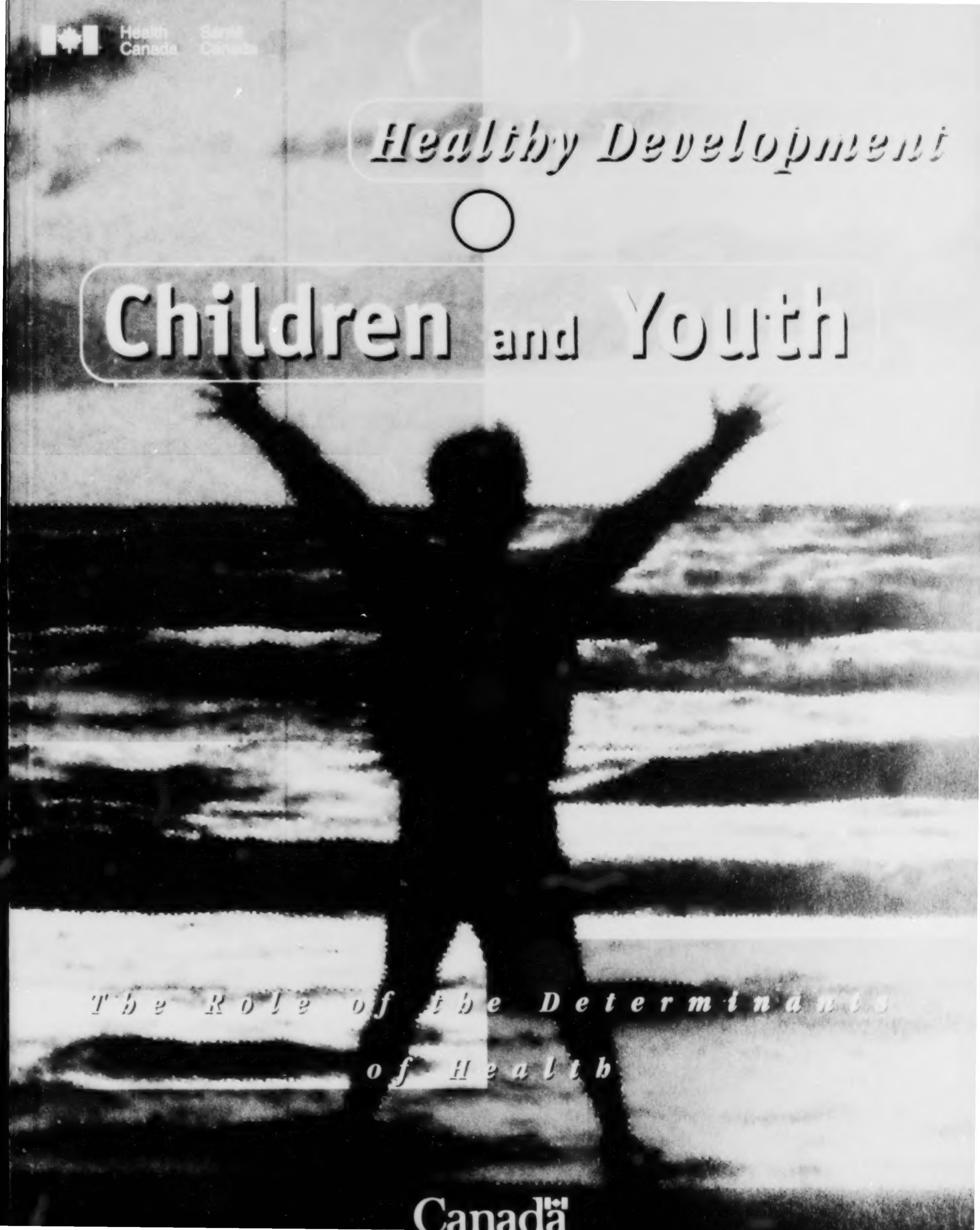
Healthy Development

Children and Youth

The Rôle of the Determinants of Health



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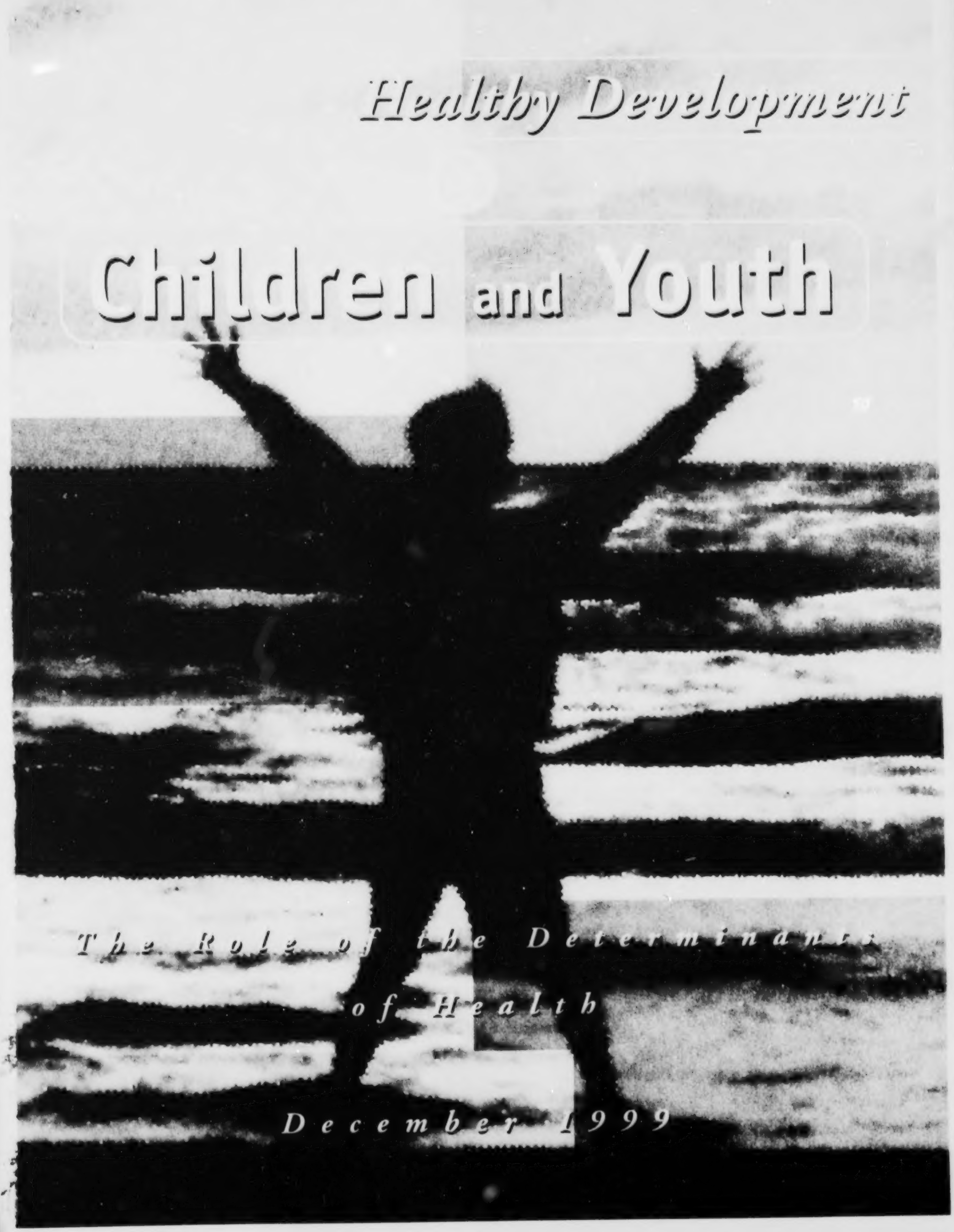

Healthy Development

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The Role of the Determinants of Health

December 1999

Our mission is to help the people of Canada maintain and improve their health.

Health Canada

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Foreword

Strategies to influence population health status must address the broad range of health determinants in ways that are both comprehensive and integrated. While, in its own right, healthy child development is a crucial determinant of future health and well-being of the population, it is also influenced by each one of the other major determinants. Collaboration and active support across many sectors is necessary to raise healthy, engaged, socially responsible citizens.

This report comes at a time when there is high interest in the health and well-being of Canadian children and youth. Governments across Canada believe that a National Children's Agenda, developed as a shared vision, will help to enhance collective efforts to improve children's lives.

The purpose of *Healthy Development of Children and Youth* is to contribute to the knowledge base and stimulate discussion about the application of the determinants of health concept to the healthy development of Canada's children and youth. The report offers a framework for the discussion of child and youth development issues among all interested sectors — a vital step in the process of applying population health.

Through this document and in collaboration with major national initiatives, such as the *Report on the Health of Canadians*, the *National Longitudinal Survey of Children and Youth* and the *Health Behaviours in School-Aged Children Study*, it is hoped that a common evidence base will be developed to set priorities, develop strategies, plan and implement action and measure progress related to the health and well-being of our children. This process will increase the understanding of the issues and their interrelationships by all sectors about the ways in which their policies, decisions and actions have an impact on the health and well-being of the child and youth population as a whole.

Ian Potter
Assistant Deputy Minister
Health Promotion and Programs Branch

Acknowledgements

Many groups and individuals within Health Canada and other federal departments were involved in the development of the research framework, which forms the basis of this report, identifying and selecting the research and data to be included, as well as providing input and feedback at various stages of the report's development. Because of the complexity of the task and the length of time required to develop the report, many of the individuals involved in both the working and advisory groups have changed since the beginning of the initiative.

Health Canada's Childhood and Youth Division would like to thank the following federal departments for their collaboration: Human Resources Development Canada; Indian and Northern Affairs Canada; Justice Canada; Environment Canada; and Status of Women Canada.

Childhood and Youth Division would also like to thank their colleagues in other divisions and directorates of Health Promotion and Programs Branch, Health Protection Branch, Medical Services Branch, and in Policy and Consultation Branch. Their attention to detail and thoughtful input and feedback have contributed immensely to this comprehensive report.

Additionally, several external experts were consulted and produced the first drafts of either whole chapters or sections of chapters. Childhood and Youth Division thanks: Dr. Denise Avard and Dr. Eef Harmsen of Avard & Harmsen, Consultants; Craig Shields of Human Services Consultants; and Dr. Peter Szatmari of the Canadian Centre for Studies of Children At Risk at McMaster University.

Within Childhood and Youth Division, the leadership of Brian Ward in conceptualizing the project, and Esther Kwavnick and Helen McElroy in supporting the project and providing guidance and advice were invaluable. The team which provided the continuing day-to-day work to bring the project to reality consisted of Mary Johnston, Andrea Brand, Catherine Mills and Daniel Riendeau.

Allium Consulting Group Inc. (Ottawa) was responsible for the writing, editing, design and production. Catherine Robinson provided project management and, together with Jane Chapman, carried out the writing and editing of the report. Simon Alves designed the report, Jane Coghlan provided production coordination, and Gina Marin was responsible for desktop publishing.

The staff at Traductions Houle were responsible for the French language translation. The revisions of the French text was done by Sylvain Topping.

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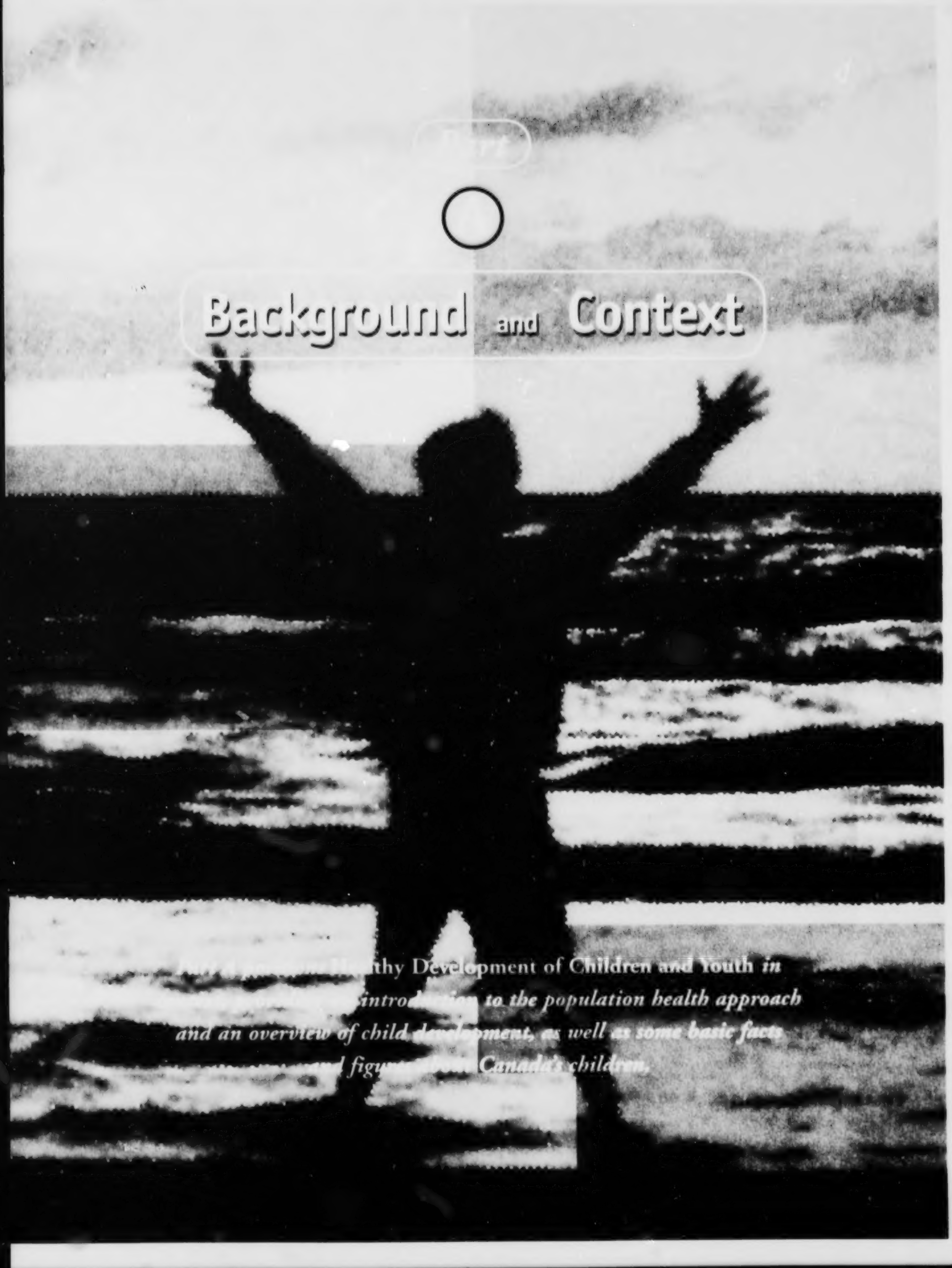

Part

Background and Context

[illegible] Healthy Development of Children and Youth *in* *[illegible] introduction to the population health approach and an overview of child development, as well as some basic facts and figures about Canada's children.*

Introduction

For the most part, our children and youth are growing up healthy, and live, study and work in environnments that promote well-being. Not only do young people and children represent Canada's future, they are also important today as members of Canadian families, communities and the larger society. Yet, a number of significant inequalities exist in the health status of Canadian children and youth. Some young people are more likely to be injured, others to experience physical and mental health challenges. Without appropriate action, these health inequalities are likely to persist into adulthood. On both a personal and societal level, the down-stream consequences of these early experiences can be overwhelming.

Current research shows that much of the ill health and injury evident among young Canadians can be prevented. Moreover, it is now accepted that the health status of young people in Canada is influenced by a wide range of social, cultural, physical and economic determinants, many of which lie outside the traditional health sector. Through research and experience we are coming to know the power of education in improving the life circumstances and health outcomes for young people. There is a growing awareness of the alienation and negative consequences experienced by young people growing up in poverty. Positive social environments, supportive family structures, a healthy and safe environment — all of these factors interact to affect the health of Canadian children.

In fact, the research provides a glimpse of the future for Canada's young people, including a promise of what is possible through concerted action on a number of important fronts. Working together, we can build a healthy and fulfilling future for Canada's children. But while there is cause for optimism, there is also the need for caution. The challenges that lie ahead are daunting and cannot be addressed in isolation. A cooperative, multi-sectoral approach that addresses the wider determinants of health is essential for enhancing the health of Canadian children and youth.

Purpose, Scope and Organization of the Report

Healthy Development of Children and Youth is intended as a starting point for discussion and action aimed at improving the prospects for Canadian children and youth. Using a population health approach, the report compiles existing research to explain how the various determinants of health interact to shape healthy child development, and to depict conditions and trends relevant to the health and well-being of children and youth in Canada.

The document is aimed at a wide range of audiences concerned with the current and future health of Canada's children and youth, including policy and program developers, researchers working in all levels of government, health and social service agencies, and research organizations. It is hoped that the information presented here will promote broad-based thinking about the conditions and factors that help to shape children's health. To this end, policy and program developers will be encouraged to look outside their traditional areas of influence to consider the impact of their decisions on healthy child development.

Through the Population Health Lens

The population health approach, which incorporates the broad determinants of health and well-being, provides a useful framework for organizing evidence about the factors that contribute to children's health, and for highlighting promising avenues for further research and action. While healthy child development is itself a determinant of health, for the purposes of this report it serves as the filter or lens through which the other determinants of health are viewed and analyzed.

The population health approach is still in its infancy — much work remains to be done before it will be possible to identify with any certainty the specific causes of good health and how the various determinants interact to shape children's health and well-being. An important contribution to both strengthening and broadening the field, the report draws heavily on a plenitude of excellent work that has been carried out by researchers and practitioners working in the field of healthy child development, as well as on the work of those in fields related to the other determinants of health. By drawing together highlights of the literature and presenting the research within a population health framework, the report enables policy and program developers to access relevant information easily and to add to their own knowledge base on issues related to healthy child development. With this goal in mind, key linkages among various determinants have been illustrated throughout the report — again, with a view to encouraging readers to look beyond their own fields and to consider the implications of the full range of factors that influence children's health.

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The primary focus of the report is children and youth to the age of 18 years. It should be noted, however, that many of the issues addressed relate to adults (especially parents). So many aspects of children's lives are beyond their individual control that a broader examination of the settings in which they operate — physical, social and economic — is essential to painting the full picture of relevant conditions and trends. For some issue areas, such as income and child poverty, a wealth of information exists; other areas, for example, the incidence of child abuse, lack information at the national level.

Organization of the Report

The report is organized into 12 core chapters, as well as this introduction. The **Introduction** provides useful background information, including basic demographic information about Canada's children and youth, an overview of the population health approach and the determinants of health, and a general description of the process of child development.

Chapters 1 to 11 make up the body of the report. Each chapter examines a specific determinant of health, addressing its relationship to healthy child development, summarizing current conditions and trends relevant to that determinant, and identifying how it relates to other determinants of healthy child development.

Chapter 12 presents a commentary by the Childhood and Youth Division of Health Canada. It takes a broader view of the areas of concern identified in each chapter, compiling some of the key findings about the determinants of health to identify issues, opportunities and priorities for intersectoral collaboration and decision making that will improve the health and future prospects for Canada's children and youth.

Canada's Native Population: Defining the Terms

For the purposes of this report, the terminology used to describe Canada's Native populations is defined as follows:

Aboriginal: *includes the Indian, Métis and Inuit peoples of Canada*

First Nations: *refers specifically to Status Indians (i.e., Registered Indians)*

Status Indian: *is a person recorded as an Indian in the Indian Register. Most registered Indians are members of an Indian band.*

Studies referenced throughout this report do not necessarily use these same definitions.

Data Sources and Limitations

This report draws on a wide range of health information from a variety of sources. Some major studies were used extensively throughout the report, including the National Population Health Survey (NPHS), the 1996 Census and the National Longitudinal Survey on Children and Youth, 1994–95.

A range of other reliable data sources and reports were also consulted and credited in discussions of health issues and trends. This has resulted in some discrepancies and inconsistencies in how information is presented. For example, differing age categories may not allow direct comparisons across studies.

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Similarly, differences in the time periods reported for some indicators do not permit readers to consider relative changes over time with any degree of precision. Many studies of Canada's native population variously define the different groups, making comparisons difficult (see sidebar, p. 5). Likewise, the terms "poverty" and "poor" may be variously defined in the research.

It should be noted that while a wealth of information about the health of Canadian children is collected and published each year, there are a number of significant areas in which data are lacking. Several of these gaps merit particular attention, including the lack of data on the quality of health-care services and the fact that most health service data are hospital based. Moreover, information on Aboriginal peoples and other cultural groups is inconsistent or lacking altogether. Culture and ethnicity are important determinants of health and the paucity of data makes an assessment of trends and implications difficult.

The Population Health Approach

The population health approach explores the ways in which health is determined by the interaction of individual characteristics and endowments, the physical environment, and social and economic factors. As a field of study, it shifts the focus from individual health to the health of the population as a whole and to subgroups of the population. Consistent with this shift is a change of emphasis from individual actions and attributes (such as personal behaviour and knowledge) to collective, societal factors that affect health and well-being.

The following passage describes the approach and its focus:

> The population health approach focuses on the entire range of individual and collective factors and conditions, and the interactions among them, that determine the health and well-being of Canadians. Strategies are based on an assessment of the conditions of risk and benefit that may apply across the entire population or to particular subgroups within the population (Health Canada, 1996a, p. 3).

An Evolution in Thinking

The population health approach builds on a 20-year legacy of Canadian advancements in how to best promote and maintain the health of a nation. Since the early 1970s, Canada has gained international renown for its work in the area of health promotion. This reputation relates to the development of a number of important initiatives, including community action programs for health promotion, health advocacy and healthy public policy.

The release of the highly acclaimed Lalonde report, *A New Perspective on the Health of Canadians* (1974), was a turning point in broadening Canadians' understanding of the factors that contribute to health as well as the role of the government in promoting the health of the population. The report identified human biology, environment, lifestyle and health-care organizations as the four principal elements affecting health.

Population Health in Action

Health Canada's Community Action Program for Children (CAPC) is an innovative, community-based program that is designed to ensure children living in conditions of risk get a healthy start in life.

One CAPC initiative, the Trinity Conception Family Resource Program in Newfoundland, offers a range of programs to support children from conception to age 6 and parents. There are parenting programs and children's programs, as well as support groups, discussion groups on budget management and a clothing exchange.

By the mid-1980s, there was growing recognition of the limitations of many health promotion efforts. It was argued that the health and behaviour of people were also determined by conditions such as income, employment, social status, housing and other environmental factors. The emerging focus on these non-medical determinants of health, as well as the release of both *Achieving Health for All* (1986) (which added social justice and equity to the mix) and the *Ottawa Charter for Health Promotion* (1986) began to shift attention to the societal (population) level — essentially pointing to factors that were beyond the immediate control of individuals, professionals and communities.

Both *Achieving Health for All: A Framework for Health Promotion* and the *Ottawa Charter for Health Promotion* provided important frameworks for guiding policy and program development, not only in Canada but also internationally. They continue to be relevant today and have served as the basis for key developments in health policy over the past 15 years.

Specifically, *Achieving Health for All* set out a plan for putting health promotion strategies into action and reiterated the need for positive, holistic perspectives on health. In addition to identifying national health challenges, the framework presented a set of health promotion mechanisms (self-care, mutual aid and healthy environments) and a series of implementation strategies (fostering public participation, strengthening community health services and coordinating healthy public policy).

Similarly, the *Ottawa Charter* was an important stage in the progression towards a more comprehensive view of health. It included a clear working definition of health promotion action, specifying the need to build healthy public policy, create supportive environments, strengthen community action, develop professional skills, and reorient health services.

In the early 1990s, population health researchers began to publish findings and articulate a model of the determinants of health that provided additional evidence for many of the fundamental principles and activities initiated by the health promotion agendas in many government and health policy circles.

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In 1994, the population health approach was officially endorsed by the Federal/Provincial/Territorial Ministers of Health in the report *Strategies for Population Health: Investing in the Health of Canadians*. The report summarized what is known about the broad determinants of health and articulated a framework to guide the development of policies and strategies to improve population health.

The Determinants of Health

The population health approach identifies the broad range of factors that interact to affect personal health and well-being. "Determinants of health" is the collective label given to the multiple factors that are now thought to contribute to the health of populations. An overview of these factors — including a brief description of their relevance to health and healthy child development — is provided below. Each determinant is addressed in greater depth in the following chapters, in terms of how it relates to children's health directly and how it interacts with other determinants of health.

Population Health in Action

"Healthy kids learn better." Since it was first initiated in 1993, Calgary's **Comprehensive School Health Initiative** *has grown to include 88 area schools. The approach, which partners the health and education sectors, as well as schools within the broader community, addresses a range of health issues such as mental/emotional health, nutrition, physical activity, healthy sexuality, tobacco use and substance abuse prevention, and injury prevention.*

Income and social status

Income and social status are the most important determinants of health. There is conclusive evidence that people at each level of the income scale are healthier and live longer than those at the level below. Moreover, countries in which incomes are more evenly distributed have a healthier population in terms of life expectancy, quality of life and mortality rates. Family income has a direct influence on children's health outcomes: inadequate income can negatively affect children's physical and mental health, cognitive and social development, and academic achievement.

Employment and work environment

Unemployment, underemployment and stress at work are associated with poor health. Generally, people who have more control over their work and fewer stress-related job demands are healthier and live longer than those who are unemployed or have high-stress jobs. Conversely, employment contributes to better health for parents and children. Employment status and working conditions affect parents' economic opportunities as well as their ability to carry out family responsibilities and to develop healthy relationships with their children. Not surprisingly, these factors affect the health of the parents' offspring.

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Income and social status are the most important determinants of health. There is conclusive evidence that people at each level of the income scale are healthier and live longer than those at the level below. Moreover, countries in which incomes are more evenly distributed have a healthier population in terms of life expectancy, quality of life and mortality rates. Family income has a direct influence on children's health outcomes: inadequate income can negatively affect children's physical and mental health, cognitive and social development, and academic achievement.

Employment and work environment

Unemployment, underemployment and stress at work are associated with poor health. Generally, people who have more control over their work and fewer stress-related job demands are healthier and live longer than those who are unemployed or have high-stress jobs. Conversely, employment contributes to better health for parents and children. Employment status and working conditions affect parents' economic opportunities as well as their ability to carry out family responsibilities and to develop healthy relationships with their children. Not surprisingly, these factors affect the health of the parents' offspring.

Education

Health status improves with level of education. Education affects income level and job security, and equips people with a sense of control over their life circumstances — all key influences on health. Many factors contribute to how long children stay in school and how well they perform in school, including parents' education level and involvement in the child's schooling, and a child's overall readiness for school. In addition, the development of health literacy skills is important in knowing how to access the information needed to make responsible decisions about using the health-care system, as well as those about maintaining and improving personal and family health.

Social environment

Living in safe, supportive communities and having the support of families, friends and neighbours can help to reduce stress and contribute significantly to positive health outcomes. These primary and secondary supports are essential for children and can help parents cope with the stress of raising a family.

Natural and built environments

Physical factors in the natural environment (e.g. air and water quality) can have a direct impact on health. Factors in the human-built environment (e.g. housing, community and road design) also influence health, quality of life and well-being. For example, living in substandard housing may pose a threat to the safety of children and their families, while the design of communities (e.g. common space, lighting, density) can influence social interaction and safety.

Personal health practices

People's health practices — ranging from the amount of physical activity they engage in and the kind of food they eat to whether they smoke and practise safe sex — play a key role in determining health. Environments that support and enable healthy lifestyle choices can have a positive effect on people's overall health. Many of the practices that will contribute to health and well-being in adulthood are established during childhood and adolescence.

Individual capacity and coping skills

Psychological characteristics such as personal competence and sense of control and mastery over one's life play an important role in supporting mental and physical health. They influence people's susceptibility to such health problems as cancer and cardiovascular disease, and affect their risk of mental disorders and suicide. There is strong evidence that coping skills are acquired primarily in the first few years of life and that resilience to stress and negative circumstances is profoundly influenced by the experiences of early childhood.

Genetic and biological factors

The basic biology and genetic make-up of the human body is a fundamental determinant of health. Inherited predispositions to a wide range of health conditions and diseases can affect health status given particular social, physical and environmental circumstances. Additionally, maternal exposure to a variety of microbial and chemical compounds during pregnancy can have an impact on the fetus and thus on the future health of a baby.

Health services and social services

Health services contribute significantly to health, in particular those services designed to maintain and promote health, to prevent disease and to restore health and function. For children, young people and their families who are disadvantaged in some way, social services are also key to ensuring basic needs and other necessities that serve as a foundation to good health. These services help to keep children on healthy developmental pathways and to reduce the risk of negative consequences for young people who are disadvantaged in some way. Many other community facilities and services such as recreation, transportation, parks, schools and libraries play key roles in helping families raise healthy, socially engaged children.

Culture

Some people in society face additional health risks due to marginalization, stigmatization and lack of access to culturally appropriate services. Culture-specific practices can also have an impact on the overall health of a population. New immigrant and refugee children, as well as children from other ethnic groups and Aboriginal children (including First Nations, Inuit and Métis), are likely to experience unique stresses that can negatively affect their physical and mental health.

Gender

Gender refers to the array of socially determined roles, personality traits, attitudes, behaviours and values that society ascribes to being male or female. Many health issues such as dieting, smoking and sexually transmitted diseases (STDs) are a function of these gender-based roles, the majority of which are established in early childhood and adolescence.

Overview of Children's Development

Good health does not happen automatically. On the contrary, ongoing positive investments are needed for an infant to grow and develop into a competent, participating adult member of society. When such investments are not made (for whatever reason), many children will carry into adulthood physical and/or emotional disabilities that could have been prevented.

Children and young people are particularly vulnerable to conditions in their social and physical environments. As they pass through infancy and early childhood to the teenage years, they are susceptible to a wide range of positive and negative influences. To grow and mature into healthy adults, they require support, care, understanding and nurturing from their family, peers, school community, and community groups. At each developmental stage, the type and source of the support children require may vary considerably.

Traditionally, the course of childhood development has been seen as a progression through a series of predictable stages, each with its own tasks and accomplishments. Health at later stages and in adult life has been thought to be partially determined by the events, conditions and successes at preceding stages. These models have presented development as a ladder-like progression, assuming similar life experiences for all and implying a single route to adulthood (Rutter, 1989).

The nature of the tasks within the different stages is given a different emphasis in different models. Jean Piaget's model, for instance, emphasizes the cognitive ability to adapt to the environment; Eric Erikson's concept concentrates on personality development through conflict resolution at each stage; and Robert Havighurst's framework outlines various developmental tasks that must be mastered at each stage.

Longitudinal studies are offering support for a less rigidly defined line of development, shifting the model to one of pathways. While an individual's growth — physical, psychological and social — does progress through stages marked by important life transitions, these transitional events, their meaning, and their impact seem to be varied, and personal. There may be various routes and detours in a child's movement through life and immense individual variability in important life transitions. Adverse past experiences may be offset by "recuperative" experiences occurring later in life or by the present environment and/or circumstances. A single negative event does not necessarily and inevitably lead to a single effect. Childhood development is less a ladder of linear steps than a series of pathways with innumerable routes and outcomes.

What is shared and vitally important in all these models is that chain effects in development are common. The past *does* affect present health, albeit in individualized ways. If we are to make a difference in the healthy lives of children and the adults they become, we must acknowledge the variety of individual experience and consider them in personal terms; we must see the complex links in causal chains and how they interconnect; and we must search for the unifying principles underlying the diversity of pathways from childhood to adult life.

M121

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The early years

More recent research indicates that the period from pre-conception to age 5 is much more important than previously thought (Guy, 1997, p. 6). It is an extremely sensitive and critical time in the development of the child, laying the groundwork physically, mentally and socially for later health, forming resources that may be drawn on later in life or deficits that must be overcome. During this "investment phase," children develop language skills, the ability to learn, to cope with stress, to have healthy relationships with others, and to have a sense of self. The effects can be physically based; poor nutrition before or during pregnancy and during a child's infancy can seriously interfere with brain development. The effects can also be socially or emotionally based; secure attachment to a nurturing adult, positive sensory stimulation, and positive social interactions are crucial to ensure future well-being (Federal, Provincial and Territorial Advisory Committee on Population Health, 1998).

How the Brain Develops

Recent research on the development of the brain has reinforced the belief that the first few years of life are vitally important to healthy development, and that impacts felt early on may well have consequences throughout life.

By the time a baby is born, it will have approximately 100 billion brain cells and will have the ability to learn through the general pathways connecting regions of the brain. If development goes well, so does the ability to learn.

The baby's neurons begin to form a dense network of interconnections, with each cell sending messages out to other brain cells and receiving input from others. With the help of special chemicals, they travel from cell to cell, creating connections. Repeated activation of these networks strengthens the connections so that by the time the child reaches age 2 or 3, each neuron has formed an average of 15,000 connections. This network of connections provides the child with built-in flexibility, allowing her to respond successfully to stimulae in her environment. For example, in order to learn language, a child must be physiologically ready for sound structures and grammar.

Children retain these neural connections until about age 10 or 11, after which time pathways that have not been repeatedly stimulated will gradually atrophy and die. Various factors — for example, disease, toxic substances and alcohol — can place a child's developing brain at risk. Social experience is also critical to the process of development; the workings of the brain are profoundly shaped by children's experiences, in particular, their relationships with family and peers (Nash, 1997).

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51.5

The middle years

In the middle years (to age 12), children experience rapid changes socially, intellectually, psychologically and emotionally, contributing to their personal adjustment and social acceptance. It is a time of expanded social relationships and demands during which they develop values, enhance problem-solving skills, achieve greater independence, and form a framework of attitudes towards society and behaviour towards others. Physical changes decelerate while cognitive intellectual development speeds up. During this period, developmental lags experienced in the early years may be overcome through the mediation of the family, community and school (Federal, Provincial and Territorial Advisory Committee on Population Health, 1998, p. 7).

The adolescent years

During adolescence, from age 12 on, the child acquires more abstract cognitive abilities and develops a social, more gender-based role. Physical changes accelerate at this time; cognitive development continues through puberty, but tends to level off afterwards. Peer influence becomes even more important while the child is shaping an ethical system to guide behaviour in society. During this stage, family and community become important as the adolescent prepares for the transition to adult responsibilities and experiences: work, marriage, and child bearing.

Childhood mediators

As Rutter (1989) points out in "Pathways from Childhood to Adult Life," longitudinal research indicates that while events or conditions in childhood or adolescence may set off a chain reaction of experiences or choices that affect the well-being of the adult, the outcomes are not always the same. Several factors appear to "mediate," strengthening or weakening the link in the potential chain. For example, the nature of a causal factor alone does not determine its effect: timing also appears to be important. Neural structure and functioning may be adversely affected during periods of high neural development, but not after. Infants and babies may not be affected by separation from their parents, while toddlers will be. Timing may also determine societal responses to incidents, influencing how they are experienced, as in the case of teenage pregnancies. As another example, the occurrence of an event in itself is not enough to assess its outcome — how it is experienced and its meaning to that individual may determine its impact on the well-being of the individual. To illustrate, unwanted parenthood at an early age will not be the same experience as the welcome birth of a child to a young, happily married couple.

A dynamic process

The influences in the life of a child or young adult that contribute to their health and future well-being are rich and complex. Their biological conditions (genetically or non-genetically determined), their physical, social and economic environment, the cognitive and social skills they develop, their sense of self and self-esteem, and their habits and coping styles are only a few of the interconnected forces working in their development. The route along the pathway from childhood to adulthood is a dynamic one, characterized by a "continuing interplay over time between intrinsic and extrinsic influences on individual development" (Rutter, 1989, p. 24).

About Canada's Children

Canadian children and youth are a diverse group that make up almost one third of the population. They come from varied ethnic, religious and linguistic backgrounds; they live in a variety of family structures in both urban and rural settings; and they grow up in families with disparate levels of social and economic resources. For the purposes of this report, and in keeping with the United Nations Convention on the Rights of the Child, a child is defined as a person who is 18 years old and under.

This section presents a broad overview of Canada's children. It establishes a general context for the more specific discussion in the remaining chapters of key variables that influence children's health, and provides the reader with basic information about who Canada's children are and how they live. More detail on many of the points below is included in the following chapters of this report.

How Many Are There?

- In 1997, there were slightly more than 8 million children aged 0 (newborn) to 19 years in Canada — 51.2% of these were boys and 48.8%, girls. Children in this age group made up 26.5% of the Canadian population (Statistics Canada, 1998a). The number of children has declined steadily since 1961 (Ross, Scott and Kelly, 1996, p. 17). See **Exhibit** 1.

1 Population of children and youth, by sex and age, Canada, 1997

	Both sexes	Male	Female	Both sexes	Male	Female
		Number			% of total population	
All ages	**30,286,596**	**14,999,677**	**15,286,919**	**26.5**	**27.4**	**25.6**
0–4	1,915,801	981,837	933,964	6.33	6.55	6.11
5–9	2,049,449	1,049,529	999,920	6.77	7.00	6.54
10–14	2,027,130	1,035,369	991,761	6.69	6.90	6.49
15–19	2,024,088	1,037,276	986,812	6.68	6.92	6.46

Source: Adapted from the Statistics Canada Web site: www.statcan.ca

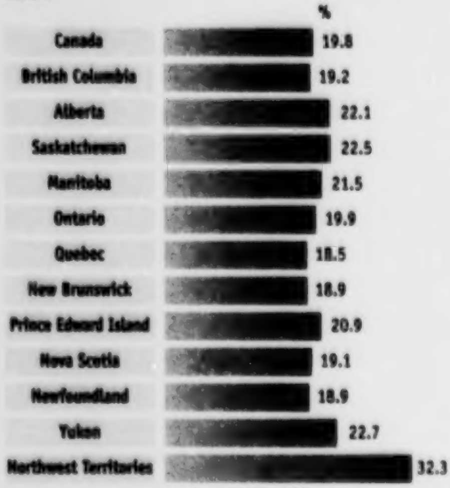
- In 1996, there were 280,415 Aboriginal children under the age of 15 living in Canada; they accounted for 35% of all Aboriginal people identified in the census that year (Statistics Canada, 1998b).
- Canada's natural growth rate accounted for 47% of the population's growth in 1996, while immigration accounted for the remaining 53%. The natural growth rate declined substantially between 1990 and 1995, from 7.7 to 5.7 per 1,000 population (Statistics Canada, 1998c).

Where Do They Live?

- The proportion of children aged 0 to 14 years in terms of total population varies by province/territory, ranging from a low of 19% in Quebec to a high of 32% in the Northwest Territories (Statistics Canada, 1998a). See **Exhibit 2**.
- The majority of the Canadian population lives in urban settings. However, this proportion varies considerably across the country. For example, in 1996, more than half of all residents of the Northwest Territories, Prince Edward Island and New Brunswick lived in rural settings, while the same could be said of only 17% and 18% of residents in Ontario and British Columbia, respectively (Statistics Canada, 1997a, p. 183). See **Exhibit 3**.
- In 1996, 6 out of 10 Registered Indians lived on reserve, a drop from 7 out of 10 in 1982, and this trend is expected to continue. See **Exhibit 4**. Overall, the Registered Indian population is expected to increase at a rate of 2.1% per year over the next five years — compared with a growth rate of 1.2% for the general Canadian population over the same period (DIAND, 1998, pp. 4–5).

2

Children aged 0–14 years as a proportion of the total population, by province/territory, 1997



Source: Adapted from the Statistics Canada Web site: www.statcan.ca

3

Proportion of population living in urban and rural areas, by province/territory, 1996

Province/Territory	Urban (%)	Rural (%)
Canada	77.9	22.1
British Columbia	82.1	17.9
Alberta	79.5	20.5
Saskatchewan	63.3	36.7
Manitoba	71.8	28.2
Ontario	83.3	16.7
Quebec	78.4	21.6
New Brunswick	48.8	51.2
Prince Edward Island	44.2	55.8
Nova Scotia	54.8	45.2
Newfoundland	56.9	43.1
Yukon	60.0	40.0
Northwest Territories	42.5	57.5

Source: Adapted from Statistics Canada (1997). *A National Overview: Population and Dwelling Counts*. Catalogue No. 93-357-XPB. Ottawa: Statistics Canada.

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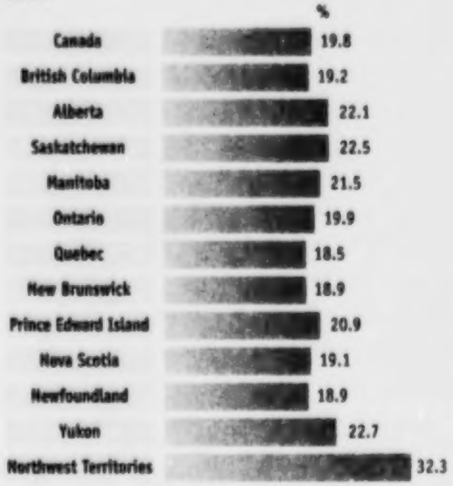

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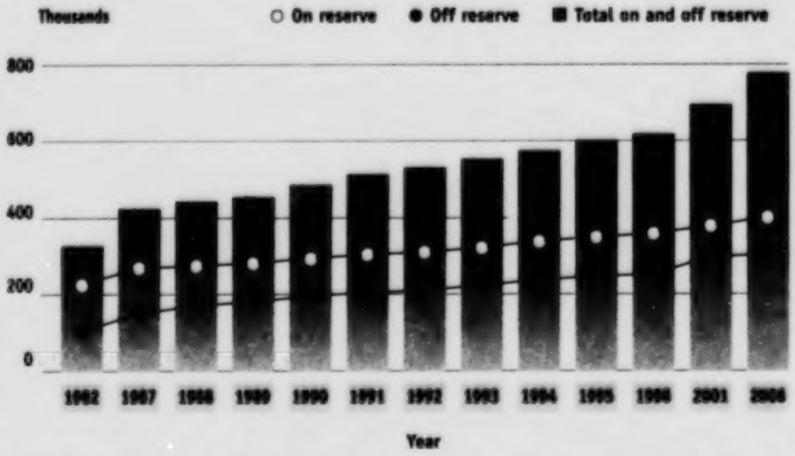
4

Current and projected registered Indian population growth on and off reserve, Canada, 1982–2006



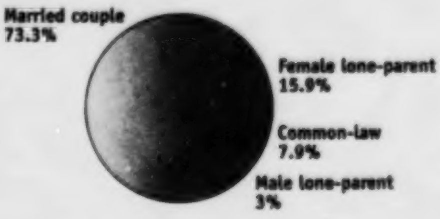
Source: Department of Indian Affairs and Northern Development (1998). *Basic Departmental Data 1997*. QS3575-000-BB-A1, Catalogue No. R12-7/1997. Ottawa: DIAND, p. 4.

What Do Families Look Like?

- In 1996, the average family size in husband-wife families was 3.0 persons; in lone-parent families, 2.5 persons (Statistics Canada, 1998a).
- In 1996, 73 of every 100 children lived in married-couple families, down from 78 children of 100 in 1991 (Statistics Canada, 1997b). See **Exhibit 5**.
- The proportion of children living in common-law families is on the rise. As of 1996, 8 out of 100 children lived in common-law families, a 52% increase over 1991 (Statistics Canada, 1997b). See **Exhibit 5**.
- Almost one in every five children in Canada lived with a lone parent in 1996, compared with one in six children in 1991; 84% of these children lived with a female lone parent (Statistics Canada, 1997b).

5

Proportion of children living in selected family structures, Canada, 1996



Note: Numbers do not total 100% due to rounding

Source: Adapted from Statistics Canada (1997). *The Daily*, Catalogue No. 11-001, October 14, 1997.

How Many Children Live in Poverty?

- In 1996, 20.9% of children under 18 years of age lived below Statistics Canada's low income cut-off (LICO) compared with 14.9% in 1980 (National Council of Welfare, 1998, p. 12).

- In 1994–95, more than one quarter (25.7%) of children in Canada lived in households with incomes of less than $30,000 per year; 41.6% were in households with total incomes ranging from $30,000 to $60,000 per year; and almost one third (32.8%) lived in higher-income households, those with annual earnings of more than $60,000. (Ross, Scott and Kelly, 1996, p. 33).

- While an accurate poverty rate for Aboriginal children is not available, some authorities consider that many Aboriginal children in Canada experience living conditions similar to those in Third World countries (CICH, 1994, p. 140).

How Healthy Are They?

- Almost 10% of children included in the 1996 National Longitudinal Survey of Children and Youth (NLSCY) were born prematurely (i.e. before 259 days' gestation) (Ross, Scott and Kelly, 1996, p. 19).

- In 1996, 5.8% of babies were considered to be of low birthweight (below 2,500 grams), declining slightly from 5.9% the previous year (Statistics Canada, 1998d).

- In 1998, life expectancy at birth was 81 years for women and 75 years for men for the general Canadian population (Health Canada, 1998). The most recent figures available (1995) for the First Nations population show life expectancy to be 76.2 years for women and 69.1 for men (Health Canada, 1996b).

- In 1996, the infant mortality rate was 5.6 deaths per 1,000 live births, declining from 6.1 per 1,000 live births in 1995 (Statistics Canada, 1998d). The most recent data available for First Nations indicate a higher and increasing infant mortality rate — 12 deaths per 1,000 live births in 1994, up from 10.9 per 1,000 in 1993 (Health Canada, 1996b).

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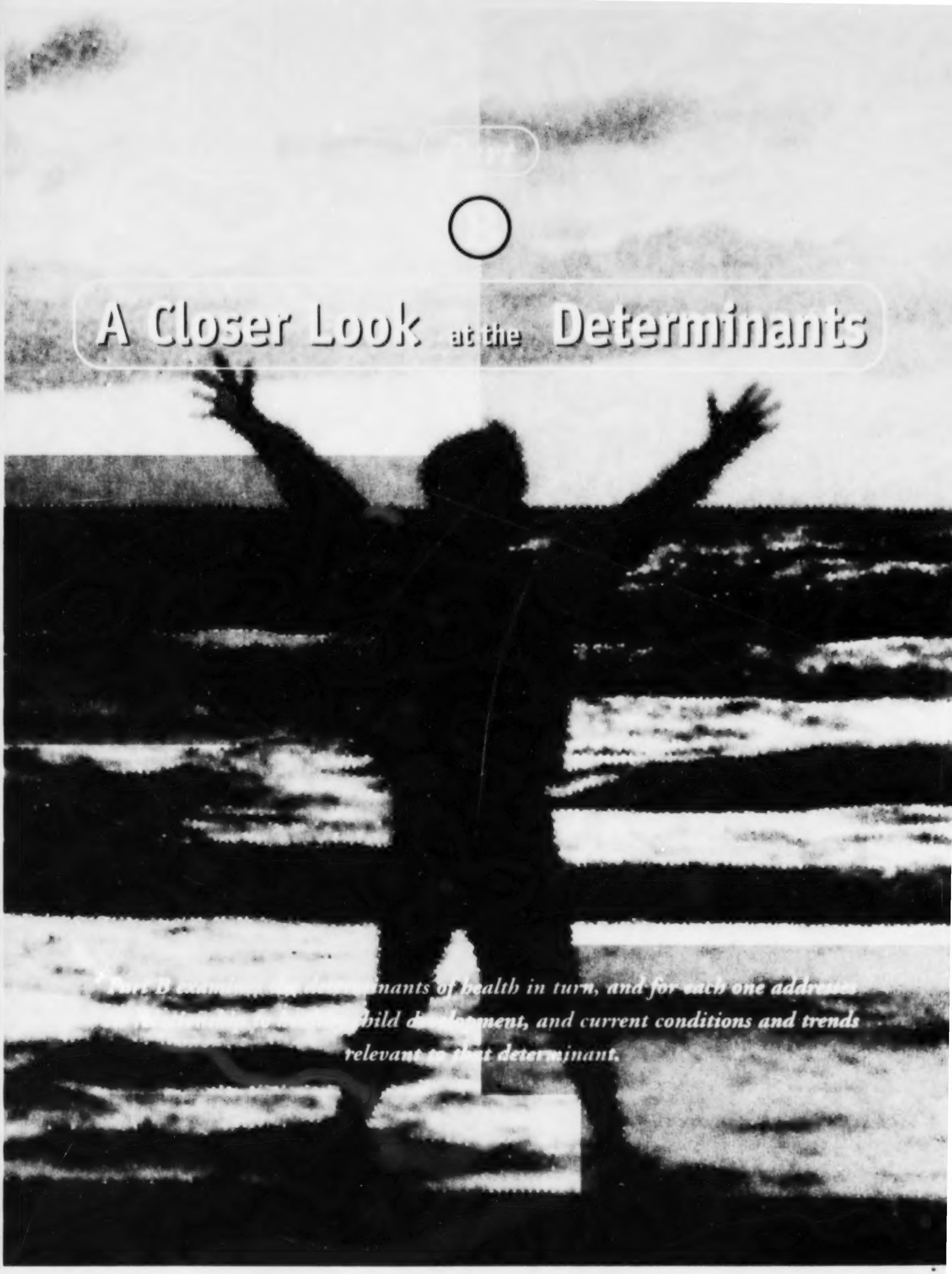
Statistics Canada (1998c). *The Daily*, June 24, 1998.

Statistics Canada (1998c). *The Daily*, July 8, 1998.



Part

B

A Closer Look at the Determinants

Part B examines the determinants of health in turn, and for each one addresses [illegible] child development, and current conditions and trends relevant to that determinant.

Chapter

1

Income and Social Status

Overview

Higher socio-economic status is associated with better health — in fact, income and social status seem to be the most important determinants of health. People at each level of the income scale are healthier and live longer than those at the level below. Countries in which incomes are more evenly distributed have a healthier population in terms of life expectancy, quality of life and mortality rates.

In addition to enabling people to cover basic needs, a higher income provides people with more choices and a feeling of greater control over decisions. This feeling of control is basic to good health.

Family income influences children's outcomes — children are dependent on their parents or guardians for food, shelter, clothing and recreational and social activities. For children, inadequate income can be harmful. Physical and mental health, cognitive and social development, and academic achievement can all be negatively affected by low income.

While average family income has been relatively stable through the 1990s, lower income families experienced decreases in income, while upper income families experienced increases. In particular, lone-parent families headed by women have persistently experienced low incomes.

Most children in Canada have access to adequate food and live in adequate housing. However, in 1995, close to 1 million children received food from a food bank.

While the causal relationship between income and health status is not clearly understood yet, it is widely accepted that raising family incomes is critical to raising child health outcomes.

M121

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Relationship to Healthy Child Development

Income affects all aspects of child health.

Socio-economic status does not only determine how children do during the preschool years, but it also appears to set the stage for health and well-being throughout life (Bertrand, 1998, p. 6).

A child's socio-economic status — determined by parents' income, occupation and education level (the latter two are the focus of other chapters in this report) — strongly influences development. For example, both infant mortality and low birthweight rates improve with each income level (CICH, 1994, p. 123).

Poverty is strongly correlated with increased risks of illness. The detrimental impacts of poverty on children are clear and show up across a wide range of child outcomes. Poor children face a greater risk of death, hospitalization and disability. They are more likely to have mental health disorders (CICH, 1994, p. 113), and to die as a result of injuries than their wealthier counterparts (Wilkins, Adams and Brancker, 1994, as cited in CICH, 1994, p. 122).

Conditions and Trends

The relationship of socio-economic status and health has been the focus of extensive research in Canada and other countries. In this section, three key issues are examined: family income, child and family poverty, and food and housing security.

Family Income

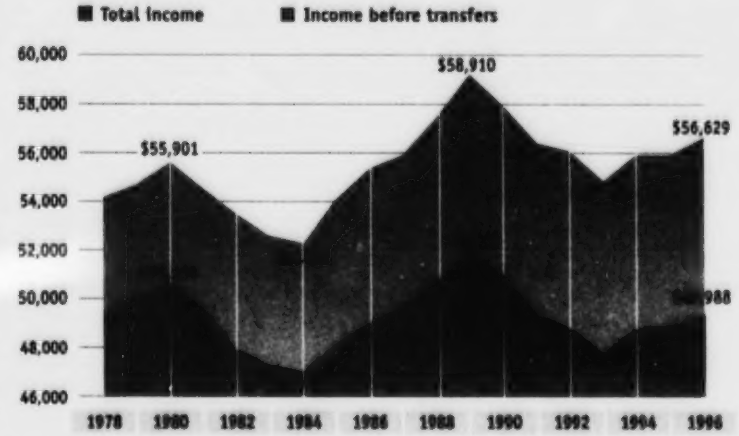
The average Canadian family needs 77 weeks' worth of work to cover basic annual expenses — meaning that most families must have two wage-earners (Vanier Institute of the Family, 1998, p. 25).

Average family income has been relatively stable in the 1990s; the 1996 figure of $56,629 is up $1,500 from 1993. However, despite little change in average income overall, between 1995 and 1996, average family income for families with the lowest income declined 3%. Conversely, average family income for those with the highest income increased almost 2%. The longer term picture shows that average family income has decreased $2,300 (3.9%) since 1989 (Statistics Canada, 1997a). See **Exhibit 1.1**.

Low Income

Estimates of the number of families with low income are derived using Statistics Canada's low income cut-offs, or LICOs (1992 base). These cut-offs were selected on the basis that families with incomes below these limits usually spend more than 55% of their income on food, shelter and clothing, and so they may be considered to live in straitened circumstances. Although the cut-offs are commonly referred to as "poverty lines," Statistics Canada does not endorse them for this purpose.

1.1 **Average family income, Canada, 1978 to 1996**



Source: Adapted from Statistics Canada (1997). *The Daily*, Catalogue No. 11-001, December 22, 1997.

Generally speaking, changes in family income can be attributed to labour market conditions, as almost 80% of total family income comes from employment. Canada's Labour Force Survey indicates that employment grew 1.3% in 1996, contrasting with the more robust growth of 2.1% in 1994, the most recent year of significant improvement in income (Statistics Canada, 1997a).

Government transfers are declining.

In 1996, government transfers declined, particularly Employment Insurance and social assistance payments (Statistics Canada, 1997a). Government transfers are an important source of income (Vanier Institute of the Family, 1998, p. 47). This made 1996 the third straight year that the proportion of family income from transfers decreased; in 1996, transfers accounted for 11.7% of total income, down from the peak of 12.9% in 1993. For the 20% of Canadians with the lowest income, 59% of their 1996 income was in the form of government transfers (Statistics Canada, 1997a).

Cost of Raising a Child

Manitoba Agriculture provides annual pricing of the basic costs related to raising a child. For 1998, the total estimated cost of raising a child to age 18 was $159,376 (Manitoba Agriculture, 1998, as cited in CCSD, 1998, p. 19). See Exhibit 1.2.

Child and Family Poverty

Child poverty rates (using low income cut-off, or LICO, as the measure of poverty) are a reflection of parental poverty rates and tend to rise and fall as economic conditions deteriorate or improve. Low-income families live on incomes substantially below the average. In 1991, the average income of low-income couples with children under 18 years was $18,800 — just 32% of the $58,761 average income for all couples with children under 18 years. This proportion was relatively unchanged five years later. In 1996, the average income of low-income couples with children was $19,915 — more than 30% of the $63,981 average income for all couples with children (Statistics Canada, 1998a).

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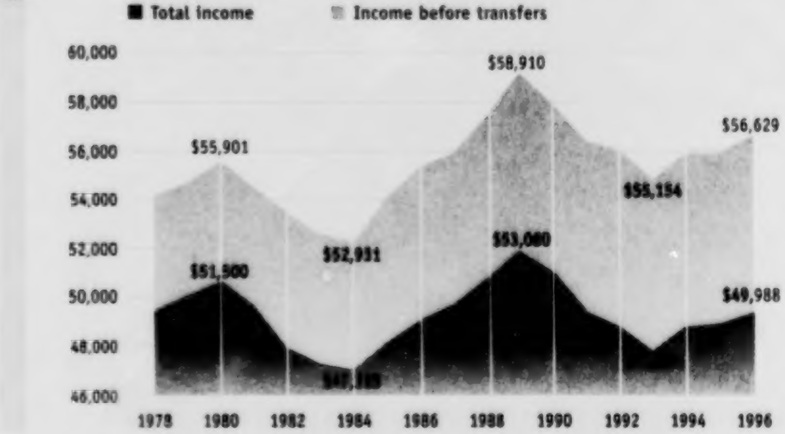

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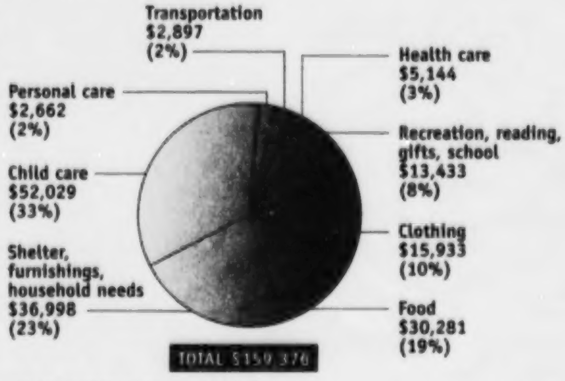
The depth of poverty for working age one-parent families has declined. In 1980, the average gap between "poverty line" income and "average" income of poor, working age lone parents was $10,284, declining to $9,604 by 1996. For working age two-parent families, the gap increased slightly from $8,474 to $8,866 (National Council of Welfare, 1998, p. 53). The benefits of the decreasing risk of poverty for children has been more than offset by the growth in the proportion of children under age 7 in lone-parent families. In 1975, 8.7% of children lived in lone-parent families; by 1992, nearly 1 million children (14.7%) lived in lone-parent families (HRDC, 1996, p. 2).

1.2 Estimated cost of raising a child to age 18, by type of expenditure, Canada, 1998



Note: These numbers are in current 1998 dollars.

Source: Prepared by the Canadian Council on Social Development using data from Manitoba Agriculture's *Family Finance: The Cost of Raising a Child: 1998*. In Canadian Council on Social Development (1998). *The Progress of Canada's Children — 1998*. Ottawa: CCSD, p. 19.

"Deep" poverty rates are high.

However, during this same period (between 1975 and 1992), there was virtually no improvement in deep poverty rates for children under age 18. (The "deep" poverty line is defined here as 75% of the 1986 LICOs). In fact, during that time, deep poverty rates for young children (under age 7) increased 1.6%. The incidence of deep poverty among children in lone-parent families declined significantly during the 18-year period (from 51.3% to 41.6%); however, the incidence is still very high (Zyblock, 1996, pp. 9–10).

Of Canadians who identify with an Aboriginal (First Nations, Inuit and Métis) group, 54% reported income of less than $10,000 in 1991, compared with 35% of all Canadian adults (Statistics Canada, 1993, p. xiv).

Government transfers appear to have played a major role in reducing the poverty gaps (i.e. between average income and poverty line) for all families — most strikingly for lone-parent families (Zyblock, 1996, p. 14). See **Exhibit 1.3**.

The overall decline in government transfer payments is of particular significance for lower income families since more than half of their income (59% in 1996) comes from this source. Overall, average family income for this group declined 3% in 1996, the result of both lower earnings and lower transfer payments. Female lone-parent families account for one in four families in this group (Statistics Canada, 1997a).

1.3 Proportion of income from government transfers for poor families, by family type, Canada, 1975 and 1992

Family type	1975	1992
Lone parent, children < 18	59.7	71.3
Lone parent, children < 7	63.3	78.9
Two parent, children < 18	26.7	42.9
Two parent, children < 7	24.6	47.7

Source: M. Zyblock (1996). *Child Poverty Trends in Canada: Exploring Depth and Incidence from a Total Money Income Perspective, 1975 to 1992*. Catalogue No. W-96-1E. Ottawa: Human Resources Development Canada, Applied Research Branch, p. 14. Reproduced with the permission of the Minister of Human Resources Development Canada, 1999.

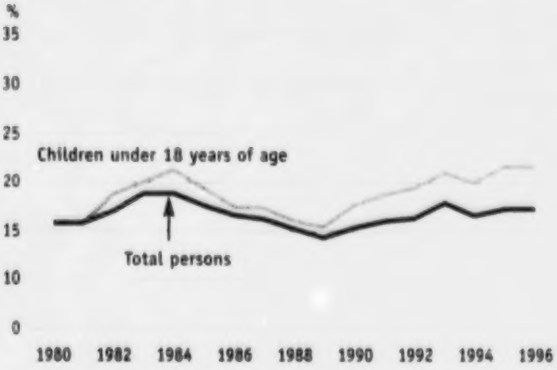
Number of poor children on the rise.

In fact, the number of poor children is increasing — it grew from 1.1 million in 1990 to 1.5 million in 1996 (National Council of Welfare, 1998, p. 12). This means that the proportion of children living in low-income families was 21.1% in 1996, little changed from 21.0% in 1995, but substantially above the low of 15.3% in 1989. The 1996 estimate was 47% more than in 1989. See **Exhibit 1.4**. During the same period, the total number of children increased 7% (Statistics Canada, 1997a).

"Young" families are hit hard.

Between 1986 and 1996, the incidence of low income among "young" families (i.e. those headed by a person aged 25 to 34 years) increased from 16% to 21.2%. During the same period, the incidence of low income among "older" families (i.e. those headed by a person over the age of 34 years) increased at a much slower rate and remained substantially lower (Statistics Canada, 1997b, pp. 182–183).

1.4 Proportion of children in low-income families,[a] Canada, 1978 to 1996



a. Living under Statistics Canada's low income cut-offs (LICOs)

Source: Adapted from Statistics Canada (1997). *The Daily*. Catalogue No. 11-001, December 22, 1997.

Many female-headed lone-parent families experience long-term poverty.

In 1994–95, one-quarter (24.6%) of children in Canada aged 0 to 11 years lived in households considered poor (Ross, Scott and Kelly, 1996a, p. 33). Younger children (ages 0 to 11) living in lone-parent families were much more likely to be poor than children living in two-parent families (68% compared with 16.5%). See **Exhibit 1.5**. Very young children are more likely to live in poverty than older children — in 1994–95, infants (under 2 years) were 20% more likely to be poor than 11-year-olds (Ross, Scott and Kelly, 1996a, p. 34).

More than two-thirds (69.5%) of families headed by female lone parents in 1982, and who remained lone parents from 1982 until 1987, had market incomes below the LICOs in every year during that time span. Persistent low market incomes were also experienced by 11.7% of two-parent families (whose structure stayed the same) with dependent children. Between 1988 and 1993, these percentages dropped to 66.9% for female lone parents and to 11.5% for couples with children (Finnie, 1997, p. 42). See **Exhibit 1.6**.

Children with Lone Female Parents

The majority of low-income children (56% in 1995) are in two-parent families, yet the risk of low income is much higher for children of single mothers (CCSD, 1996, p. 21). In 1996, 60.8% of female lone-parent families had low incomes, compared with 11.8% for two-parent families (Statistics Canada, 1997a).

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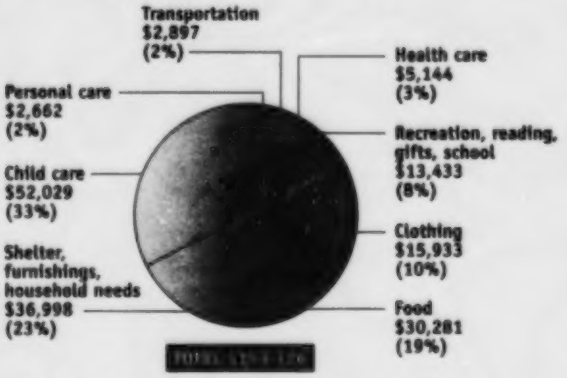

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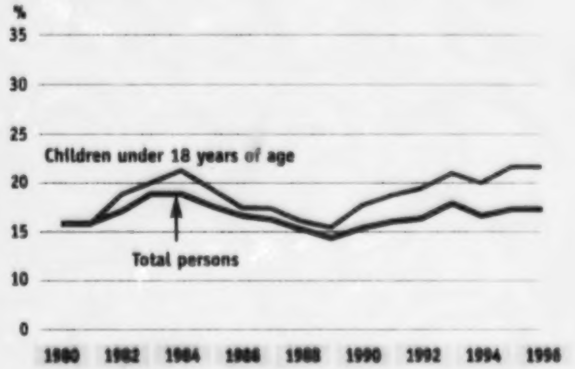

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Many Aboriginal families are poor.

In 1995, among Aboriginal children aged 6 to 14, the incidence of low income was 48%, more than double the national rate of 22% (Statistics Canada, 1998b).

In 1995, average employment income of Aboriginal people ($17,382) was 34% below the national average of $26,474. One out of every four Aboriginal earners lived on a reserve. Aboriginal people who lived on a reserve reported average employment income of $14,055, which was 24% below the $18,463 reported by those who lived off reserve (Statistics Canada, 1998b).

Among urban Aboriginal families headed by lone females, between 40% and 76% (depending on the city) lived below the poverty line in 1991. Rates were as high as 90% in some western cities — Winnipeg, Regina and Saskatoon (Clatworthy, 1994, as cited in Frankel, 1997, p. 6).

1.5 Distribution of poor[a] children aged 0 to 11 by family type, Canada, 1994–95

Family type	Poor[a] (%)	Non-poor (%)
Two-parent family	16.5	83.5
Single-parent family	68.0	32.0
Female single parent	70.9	29.1
Male single parent	30.7[b]	69.3

a. Poverty is measured using Statistics Canada's low income cut-offs (LICO).
b. Estimate less reliable due to high sampling variability.

Source: Adapted from D.P. Ross, K. Scott and M.A. Kelly (1996). "Overview: Children in Canada in the 1990s." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 34.

1.6 Proportion of families that experienced low market income,[a] by selected number of years of low income, Canada, 1982 to 1993

	Number of years of low market income 1982–1987			Number of years of low market income 1988–1993		
Family type	0	1–5	6	0	1–5	6
Couples with children	55.9	32.5	11.7	58.9	29.4	11.5
Female lone parent	11.4	19.0	69.5	13.4	19.7	66.9
Male lone parent	37.2	33.3	29.4	33.1	32.5	34.4

a. Market income refers to income before government transfer payments.

Source: R. Finnie (1997). "Earnings Dynamics in Canada: A Dynamic Analysis of Low Market Incomes (Market Poverty) of Families With Children, 1982-1993." *Applied Research Bulletin*, Vol. 4, No. 1. Catalogue No. W-97-3E.d. Ottawa: Human Resources Development Canada, Applied Research Branch, p. 30. Reproduced with the permission of the Minister of Human Resources Development Canada, 1999.

Social Assistance

In 1994–95, 88.4% of children under age 12 lived in households whose principal source of income was wages and salaries or self-employment earnings. Ten percent of children under age 12 lived in a household whose main source of income was social assistance (Ross, Scott and Kelly, 1996b, p. 35). See Exhibit 1.7. In 1996, almost half (46%) of poor, lone-parent mothers under age 65 reported income from paid employment (National Council of Welfare, 1998, p. 87). However, lone-parent families derived 31.9% of their income from government transfers in 1994 (Statistics Canada, 1998).

In 1995–96, 43% of registered Indians living on reserve — including those with children — received social assistance (DIAND, 1998).

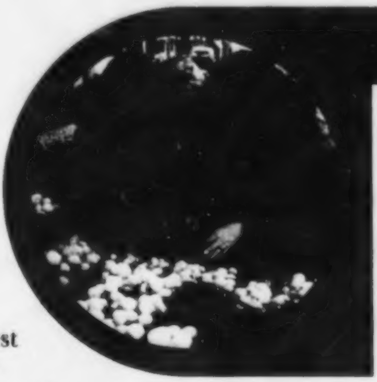
Food and Housing Security

Elements of food and housing security are closely related to income. In broad terms, households spent 17 cents of every dollar in their 1996 budgets on shelter, and 12 cents on food (Statistics Canada, 1998c). Expenditures on both food and housing as a percentage of total expenditures are significantly higher for low-income families than for high-income families.

Food costs are stable.

Expenditure on food remained relatively stable between 1992 and 1996, with the average household spending $112.09 a week on food purchased in grocery stores or restaurants in 1996 — an increase of $1.65 from 1992 (Statistics Canada, 1998d).

In 1996, households in the lowest income quintile spent 32% of their budgets on shelter and 19% on food, while households in the highest income quintile spent 13% and 10%, respectively. In dollar terms, households with the lowest incomes reported spending an average of $5,200 on shelter, compared with $12,800 for households with the largest incomes (Statistics Canada, 1998c).



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In 1996–97, 6.4% of Canadian households, including families with children, reported running out of money to buy food on at least one occasion in the previous 12 months (Health Canada, 1998). In 1995, some 900,000 children received food from one of approximately 460 food banks across the country (Canadian Dietetic Association, 1996, p. 4).

There is a high level of food insecurity in northern communities (primarily Inuit) due to the very high cost of food and inconsistent supply of good quality, nutritious foods (Lawn and Langner, 1994).

1.7 Distribution of children aged 0 to 11, by main source of household income, Canada, 1994–95

Main source of household income	% of children
Wages and salaries	74.6
Self-employment	10.8
Social assistance	10.1
Unemployment insurance	1.5
Miscellaneous[a]	1.0
Child tax benefit	0.9
Pensions[b]	0.4
Worker's compensation	0.3[c]
Child support	0.3[c]
Dividends and interest	†
Alimony	†
Total	**100.0**

a. Includes other government assistance, rental income, scholarships, etc.

b. Includes Canadian and Quebec Pension Plans, Old Age Security and Guaranteed Income Supplement, retirement pensions, supperannuation and annuities.

c. Estimate less reliable due to high sampling variability.

† Estimate too unreliable to publish.

Source: Adapted from D.P. Ross, K. Scott and M.A. Kelly (1996). "Overview: Children in Canada in the 1990s." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 35.

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a. Poverty is measured using Statistics Canada's low income cut-offs (LICO).

b. Estimate less reliable due to high sampling variability.

Source: Adapted from D.P. Ross, K. Scott and M.A. Kelly (1996). "Overview: Children in Canada in the 1990s." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 34.

1.6 Proportion of families that experienced low market income,[a] by selected number of years of low income, Canada, 1982 to 1993

	Number of years of low market income 1982–1987			Number of years of low market income 1988–1993		
Family type	**0**	**1–5**	**6**	**0**	**1–5**	**6**
Couples with children	55.9	32.5	11.7	58.9	29.4	11.5
Female lone parent	11.4	19.0	69.5	13.4	19.7	66.9
Male lone parent	37.2	33.3	29.4	33.1	32.5	34.4

a. Market income refers to income before government transfer payments.

Source: R. Finnie (1997). "Earnings Dynamics in Canada: A Dynamic Analysis of Low Market Incomes (Market Poverty) of Families With Children, 1982-1993." *Applied Research Bulletin*, Vol. 4, No. 1. Catalogue No. W-97-3E.d. Ottawa: Human Resources Development Canada, Applied Research Branch, p. 30. Reproduced with the permission of the Minister of Human Resources Development Canada, 1999.

Social Assistance

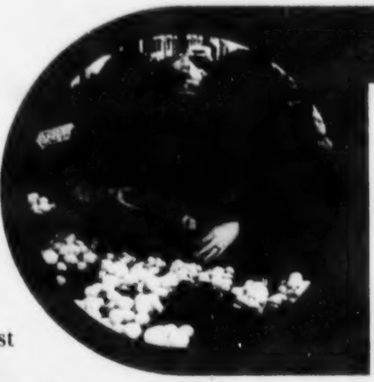
In 1994–95, 85.4% of children under age 12 lived in households whose principal source of income was wages and salaries or self-employment earnings. Ten percent of children under age 12 lived in a household whose main source of income was social assistance (Ross, Scott and Kelly, 1996a, p. 35). See Exhibit 1.7. In 1996, almost half (46%) of poor, lone-parent mothers under age 65 reported income from paid employment (National Council of Welfare, 1998, p. 67). However, lone-parent families derived 31.9% of their income from government transfers in 1994 (Statistics Canada, 1996).

In 1995–96, 43% of registered Indians living on reserve — including those with children — received social assistance (DIAND, 1998).

Food and Housing Security

Elements of food and housing security are closely related to income. In broad terms, households spent 17 cents of every dollar in their 1996 budgets on shelter, and 12 cents on food (Statistics Canada, 1998c). Expenditures on both food and housing as a percentage of total expenditures are significantly higher for low-income families than for high-income families.

Food costs are stable.



Expenditure on food remained relatively stable between 1992 and 1996, with the average household spending $112.09 a week on food purchased in grocery stores or restaurants in 1996 — an increase of $1.65 from 1992 (Statistics Canada, 1998d).

In 1996, households in the lowest income quintile spent 32% of their budgets on shelter and 19% on food, while households in the highest income quintile spent 13% and 10%, respectively. In dollar terms, households with the lowest incomes reported spending an average of $5,200 on shelter, compared with $12,800 for households with the largest incomes (Statistics Canada, 1998c).

Expenditure on food remained relatively stable between 1992 and 1996, with the average household spending $112.09 a week on food purchased in grocery stores or restaurants in 1996 — an increase of $1.65 from 1992 (Statistics Canada, 1998d).

In 1996–97, 6.4% of Canadian households, including families with children, reported running out of money to buy food on at least one occasion in the previous 12 months (Health Canada, 1998). In 1995, some 900,000 children received food from one of approximately 460 food banks across the country (Canadian Dietetic Association, 1996, p. 4).

There is a high level of food insecurity in northern communities (primarily Inuit) due to the very high cost of food and inconsistent supply of good quality, nutritious foods (Lawn and Langner, 1994).

1.7 Distribution of children aged 0 to 11, by main source of household income, Canada, 1994–95

Main source of household income	% of children
Wages and salaries	74.6
Self-employment	10.8
Social assistance	10.1
Unemployment insurance	1.5
Miscellaneous[a]	1.0
Child tax benefit	0.9
Pensions[b]	0.4
Worker's compensation	0.3[c]
Child support	0.3[c]
Dividends and interest	†
Alimony	†
Total	**100.0**

a. Includes other government assistance, rental income, scholarships, etc.

b. Includes Canadian and Quebec Pension Plans, Old Age Security and Guaranteed Income Supplement, retirement pensions, supperannuation and annuities.

c. Estimate less reliable due to high sampling variability.

† Estimate too unreliable to publish.

Source: Adapted from D.P. Ross, K. Scott and M.A. Kelly (1996). "Overview: Children in Canada in the 1990s." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 35.

Housing is not secure for all.

Most Canadian families live in housing that meets or exceeds all of today's standards for suitability (including number of bedrooms), adequacy (e.g. plumbing facilities) and affordability (costs less than 30% of the household's income).

Food Security

Most simply defined, food security is the absence of hunger and malnutrition. Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy lifestyle (Agriculture and Agri-food Canada, 1998, p. 5).

In 1991, 68% of family households met these national standards. Of the 32% of families whose housing was substandard, more than one half (54%) spent at least 30% of their income on housing. Research conducted by Canada Mortgage and Housing Corporation and Statistics Canada shows that low income is a major contributing factor behind substandard housing for Canadians (CMHC, 1993).

That year, one in 10 households — which included 548,000 children under age 16 — were unable to obtain housing that met or exceeded housing standards. These families are defined as being in "core housing need." We also know that in 1991:

- Lone-parent households were 11 times more susceptible to core housing need than two-parent households (CMHC, 1993, p. 2). Sixty-two percent of Aboriginal lone-parent families (CMHC, 1997a, p. 1) and 40% of Inuit lone-parent families are in core housing need (CMHC, 1997b, p. 1).

- Families that rent housing are six times more likely to have core housing need than families that own their housing (CMHC, 1993, p. 2).

- One out of every two lone-parent families that rent experienced core housing need (CMHC, 1993, p. 2).

- Household income for families with core housing need was only a quarter of the income of families not in need (CMHC, 1993, p. 3).

Aboriginal housing is improving.

On-reserve Aboriginal families do not fare as well. In 1996–97, 48% of on-reserve dwellings required renovations or replacement (DIAND, 1998, p. 47). Crowded living conditions are more frequent for on-reserve Aboriginal families as well; in 1991, 21% of on-reserve dwellings housed more than one person per room compared with only 1% of dwellings for the general population (DIAND, 1997). Crowding is particularly problematic for Canada's Inuit people; in 1991, 26% of Inuit households were in core housing need and were crowded (CMHC, 1997b).

Housing conditions for Aboriginal people are improving, with fewer on-reserve dwellings without water delivery systems (3.9% in 1996–97, down from 17.7% in 1987–88), and fewer dwellings without sewage disposal systems (8.5% in 1995–96, down from 27.8% in 1987–88) (DIAND, 1998, p. 48).

Urban-dwelling Native households are much more likely to live in below-standard housing (26.9% in 1991) than non-Native urban-dwellers (17.1% in 1991) (CMHC, 1995).

Income and Social Status and Other Determinants

Education

Literacy is a determinant of income. Close to 50% of adults at the lowest level of literacy live in households with low income, compared with only 8% of those at the highest level of literacy. Over half (55%) of those at the lowest scale of literacy were unemployed in 1994 and, if they did work, they earned less than $15,000 (Shalla and Schellenberg, 1998, p. 14).

People with fewer than nine years of education are more likely to have unrewarding, low-paying jobs. Moreover, growing up in persistent or concentrated poverty is related to school failure, truancy, dropping out of school, behaviour problems and delinquency (Evans, 1995, pp. 19, 24). Income also affects school readiness and academic performance — children who live in poverty are more likely to experience lower levels of educational attainment (CCSD, 1997, p. 20).

Income Plays a Pervasive Role

Children in low-income families have poorer health, lower levels of educational attainment, live in riskier environments (e.g. no household smoke detector, poor housing conditions), and partake in riskier behaviours (e.g. smoking, alcohol use, disregard for contraceptives). Compared with non-poor teens, twice as many poor teens aged 16 and 17 drop out before they complete high school (Ross, Scott and Kelly, 1996b, pp. 8, 13).

Social Environment

Poverty is strongly associated with family or neighborhood violence and aggressive behaviour patterns. As well, child abuse and neglect can be attributed to a number of factors including "inadequate monetary support, unemployment or underemployment and a lack of social services" (Advisory Committee on Children's Services, 1990, p. 22).

Personal Health Practices

Children and youth living in the poorest neighbourhoods of urban Canada are more likely than those in richer neighbourhoods to die as a result of injuries (Wilkins, Adams and Brancker, as cited in CICH, 1994, p. 122). High rates of teen pregnancy are also associated with low income — rates are almost five times higher in the lowest income neighbourhoods than in the highest income neighbourhoods (Health Canada, 1999, p. 4).

Individual Capacity and Coping Skills

There is growing evidence that competence and resiliency are undermined by the combined effects of multiple environmental stresses and the psychological deprivations that often co-exist with poverty (e.g. maternal depression, parental substance abuse and violence, and paternal criminality, rather than just low income (Steinhauer, 1998).

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Chapter

2

Employment and Work Environment

Overview

Employment status and conditions in the work environment can affect the health of parents and their children. Generally speaking, people are healthier when they are employed, have a high degree of control over their work circumstances, and have fewer stress-related job demands. Stable employment and adequate salary determine child and family income and social status. Chronic unemployment or excessive work-related stress for parents can negatively affect the mental and physical health of all family members.

The increased participation of women in the paid labour force has had a profound effect on the organization of family life, including the necessity or requirement that care arrangements be made for children while their parents are at work. For this reason, the availability and quality of child-care services are of paramount concern.

Employment, unemployment and workplace social supports are important to youth as well as adults. A high proportion of Canada's teenagers are employed — many work on a part-time basis, gaining valuable experience as they complete school and earning money towards their future education expenses.

Relationship to Healthy Child Development

Employment contributes to better health for parents and children.

Employment can be a protective health factor for parents and children. Employment status and working conditions strongly influence the economic opportunities of parents. These factors can affect their ability to carry out parenting responsibilities and, consequently, to develop healthy relationships with their children.

Conversely, unemployment is associated with poorer health. A major review by the World Health Organization found that high levels of unemployment and economic instability in a society adversely affect the mental and physical health of unemployed individuals, their families and their communities (Wescott et al., 1985). Similarly, a Canadian study found unemployed people have significantly more psychological distress, anxiety, depressive symptoms, disability days, activity limitations, health problems and hospitalization visits than do those that are employed (D'Arcy, 1986, p. 127).

In turn, these factors can have a negative impact on the health of children, who may encounter mental health problems, lowered self-esteem and a decreased ability to manage stress. They may also be less sociable and distrustful during such a difficult family time.

A healthy workplace means better health.

People who have control over their work circumstances and few stress-related demands of the job (e.g. fast work pace, frequent deadlines) are healthier and tend to live longer than those in more stressful or riskier work activities. In addition, people who have strong workplace social support (measured by the number and quality of interactions with co-workers) are more likely to be healthier than those without this type of support (Federal, Provincial and Territorial Advisory Committee on Population Health, 1994, p. 18).

A supportive workplace — coupled with workplace policies that recognize and support the needs of parents — can reduce stress and improve parents' ability to meet the demands of both working and parenting.

High-quality, accessible child care is vital.

The entry of increasing numbers of women into the paid labour force over the past several decades has resulted in a dramatic shift in child-care arrangements. Accessible child-care services are essential in supporting and promoting employment. They also give parents the opportunity to complete or continue their education and/or to participate in job training programs (Lero and Johnson, 1994, p. 31).

Moreover, the quality of child-care services is important. "When child care providers are responsive and warm, have some understanding of child development and are not responsible for too many children, child care can be just as beneficial, or more beneficial, than parent care — particularly in social and language skill development. When caregivers are neglectful or harsh, unable to give individualized attention because they are responsible for too many children and there is inadequate stimulation, research shows that non-parental care can be harmful to children" (Guy, 1997, p. 81).

Conditions and Trends

The literature identifies a number of employment-related issues that have strong links to healthy child development. This section provides recent data describing four of these issue areas: parents' labour force participation, working and parenting, child care, and youth employment.

Parents' Labour Force Participation

Most parents of young children are in the labour force, a situation that both benefits children and presents challenges to family life and healthy child development. Some of the facts about parents' labour force participation are provided below.

Many parents are working.

Working parents are the norm in most families, but not all. The National Longitudinal Survey of Children and Youth (NLSCY) shows the breakdown for two-parent and lone-parent families. In 1994–95, more than a third (35.5%) of children under age 12 lived in families where both parents were employed full time, and another third (33.2%) lived in two-parent families where one parent was employed. The situation was strikingly different for children in lone-parent families. More than one half (54.9%) lived in families where the parent was not employed, while for just over one third, the parent worked full time (Ross, Scott and Kelly, 1996, p. 35). See **Exhibit 2.1.**

Two-parent families with children under 18 have increased their combined weeks of employment an average of 5.7 weeks — from 72.6 weeks in 1984 to 78.3 weeks in 1994 (CCSD, 1996, p. 15).

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2.1 Distribution of children aged 0 to 11, by labour market status of parent(s), Canada, 1994–95

	Two-parent families (%)	Single-parent families (%)
Both full-time (except single-parent)	35.5	34.1
One full-time, one part-time	21.8	n/a
One full-time, one not employed	33.2	n/a
Part-time only[a]	2.9	10.9
Not employed	6.6	54.9

[a] Includes two-parent families in which one parent is employed part-time and the other is employed part-time or not employed.

n/a Not applicable

Source: Adapted from D.P. Ross, K. Scott and M.A. Kelly (1996). "Overview: Children in Canada in the 1990s." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 36.

More women are working.

Analysis of 1991 census data shows that the participation rate of women in the labour market more than doubled between 1961 and 1991, increasing from 29% to 60%. The participation rate for men declined over the same period, dropping from 81% to 76% (Gunderson, 1998, p. 23).

Women with young children have higher participation rates than women in general. Looking back to 1976, only 50% of mothers with children under the age of 3 were in the labour force (CICH, 1994, p. 7). See **Exhibit 2.2**. While 1991 data show that more than 70% of women with a preschooler and 78% with a child between 6 and 14 years old participated in the labour force (Gunderson, 1998, p. 28). In 1995, most married fathers (94%) were in the labour force, regardless of the age of their children (Marshall, 1998, p. 73).

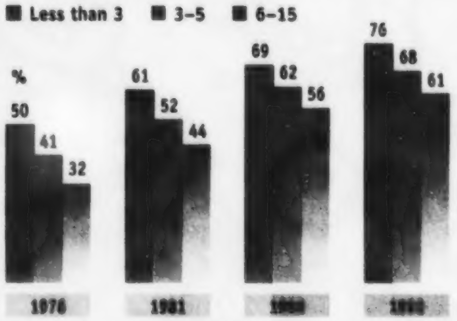
Unemployment is higher among Aboriginal and lone-parent families.

The percentage of families with at least one parent unemployed for more than six months increased from 7.1% in 1981 to 12.2% in 1994 (CCSD, 1996, p. 19).

In 1994–95, 6.6% of children aged 0 to 11 years in two-parent families lived in homes where neither parent was employed, while 54.9% of children in lone-parent homes lived with a parent who was not employed (Ross, Scott and Kelly, 1996, p. 35). See **Exhibit 2.1**.

In 1991, 10% of Canadians were unemployed compared with 25% of all Aboriginal peoples. Aboriginal people living on reserve have the highest rate of unemployment at 31% (Statistics Canada, 1993, as cited in CICH, 1994, p. 138).

2.2 Labour force participation of women,[a] by age of youngest child, Canada, 1976 to 1992



[a] Includes full-time and part-time participation.

Source: Canadian Institute of Child Health (1994). *The Health of Canada's Children: A CICH Profile*, 2nd edition. Ottawa: CICH, p. 7.

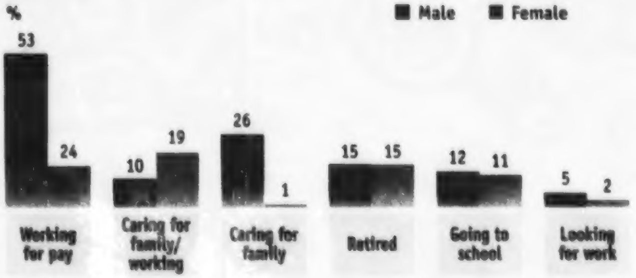
Working and Parenting

Increased participation of women in the labour force has created new challenges for parents, employers and communities pertaining to the integration of work and family responsibilities. Regardless of their employment status, women still play the primary role in child care and housework. This dual role has been linked to significant stress and health problems for women (Marshall, 1994, pp. 27–29).

Women do more "home" work.

Women are twice as likely as men to describe their main activity as caring for a family and working, and half as likely to describe it as simply working for pay or profit (Federal, Provincial and Territorial Advisory Committee on Population Health, 1996, p. 46). See **Exhibit 2.3**.

2.3 Main daily activity of adults, by selected activity and sex, Canada, age 15+, 1994–95



Source: Federal, Provincial and Territorial Advisory Committee on Population Health (1996). *Report on the Health of Canadians: Technical Appendix*. Catalogue No. H39-385/1-1996E. Ottawa: Health Canada, p. 48.

In fact, the work that primarily benefits children is done mostly by women, even when women are employed full time, and regardless of whether their husbands are also employed full time. In 1992, in households with young children where the mother and father are both employed full time (in the paid labour force), women did almost twice as much child-related work. For every hour men spent doing child-oriented work, women spent almost two hours (1.86 hours) (Federal-Provincial/Territorial Ministers Responsible for the Status of Women, 1997, p. 29).

The same study also shows that in 1992, women worked a half hour more every day (including paid and unpaid work) than men — the equivalent of five weeks per year at a full-time paid job (Federal-Provincial/Territorial Ministers Responsible for the Status of Women, 1997, p. 21).

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One full-time, one not employed	33.2	n/a
Part-time only[a]	2.9	10.9
Not employed	6.6	54.9

a. Includes two-parent families in which one parent is employed part-time and the other is employed part-time or not employed.
n/a Not applicable

Source: Adapted from D.P. Ross, K. Scott and M.A. Kelly (1996). "Overview: Children in Canada in the 1990s." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 36.

More women are working.

Analysis of 1991 census data shows that the participation rate of women in the labour market more than doubled between 1961 and 1991, increasing from 29% to 60%. The participation rate for men declined over the same period, dropping from 81% to 76% (Gunderson, 1998, p. 23).

Women with young children have higher participation rates than women in general. Looking back to 1976, only 50% of mothers with children under the age of 3 were in the labour force (CICH, 1994, p. 7). See **Exhibit 2.2**. While 1991 data show that more than 70% of women with a preschooler and 78% with a child between 6 and 14 years old participated in the labour force (Gunderson, 1998, p. 28). In 1995, most married fathers (94%) were in the labour force, regardless of the age of their children (Marshall, 1998, p. 73).

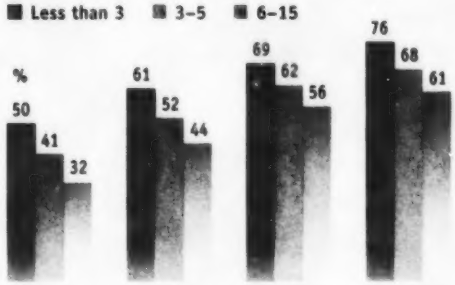
Unemployment is higher among Aboriginal and lone-parent families.

The percentage of families with at least one parent unemployed for more than six months increased from 7.1% in 1981 to 12.2% in 1994 (CCSD, 1996, p. 19).

In 1994–95, 6.6% of children aged 0 to 11 years in two-parent families lived in homes where neither parent was employed, while 54.9% of children in lone-parent homes lived with a parent who was not employed (Ross, Scott and Kelly, 1996, p. 35). See **Exhibit 2.1**.

In 1991, 10% of Canadians were unemployed compared with 25% of all Aboriginal peoples. Aboriginal people living on reserve have the highest rate of unemployment at 31% (Statistics Canada, 1993, as cited in CICH, 1994, p. 138).

2.2 Labour force participation of women,[a] by age of youngest child, Canada, 1976 to 1992



a. Includes full-time and part-time participation.

Source: Canadian Institute of Child Health (1994). *The Health of Canada's Children: A CICH Profile*, 2nd edition. Ottawa: CICH, p. 7.

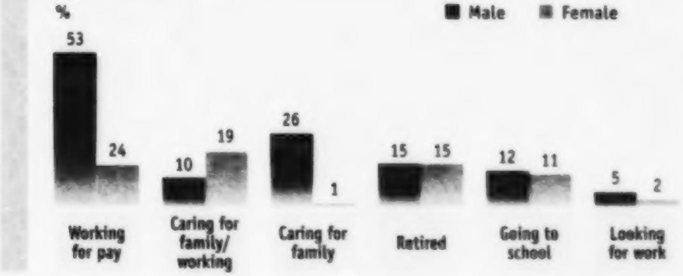
Working and Parenting

Increased participation of women in the labour force has created new challenges for parents, employers and communities pertaining to the integration of work and family responsibilities. Regardless of their employment status, women still play the primary role in child care and housework. This dual role has been linked to significant stress and health problems for women (Marshall, 1994, pp. 27–29).

Women do more "home" work.

Women are twice as likely as men to describe their main activity as caring for a family and working, and half as likely to describe it as simply working for pay or profit (Federal, Provincial and Territorial Advisory Committee on Population Health, 1996, p. 46). See **Exhibit 2.3**.

2.3 Main daily activity of adults, by selected activity and sex, Canada, age 15+, 1994–95



Source: Federal, Provincial and Territorial Advisory Committee on Population Health (1996). *Report on the Health of Canadians: Technical Appendix*. Catalogue No. H39-385/1-1996E. Ottawa: Health Canada, p. 48.

In fact, the work that primarily benefits children is done mostly by women, even when women are employed full time, and regardless of whether their husbands are also employed full time. In 1992, in households with young children where the mother and father are both employed full time (in the paid labour force), women did almost twice as much child-related work. For every hour men spent doing child-oriented work, women spent almost two hours (1.86 hours) (Federal-Provincial/Territorial Ministers Responsible for the Status of Women, 1997, p. 29).

The same study also shows that in 1992, women worked a half hour more every day (including paid and unpaid work) than men — the equivalent of five weeks per year at a full-time paid job (Federal-Provincial/Territorial Ministers Responsible for the Status of Women, 1997, p. 21).

Working mothers experience high levels of stress.

Recent research reveals that striving to balance work and family demands is closely linked to significant stress and mental health problems, particularly for women. In *The Progress of Canada's Children — 1996*, the Canadian Council on Social Development (1996, p. 15) found that working mothers report:

- high levels of work/family conflict (40%),
- high levels of stress (50%), and
- high levels of depressed mood (40%).

The stress experienced by working mothers seems to be particularly high among employed lone mothers. A 1993 study reported that this group was more likely to experience high levels of work–family tension than employed married mothers (Vanier Institute of the Family, 1998, p. 29). Lone fathers are likely to experience similar high stress levels.

Research suggests that employers seldom consider the responsibilities of employees who have family obligations as having an impact on their work. Employees are often stressed and in poor health, turn down promotions and transfers, yet feel guilty about the quality of their parenting. Employers tend to focus on the negative effects on work performance, absenteeism, turnover rates and employee morale (Vanier Institute of the Family, 1998, pp. i–ii).

Flexibility is key.

Women with children were more likely than women without children to work part time (26% and 18%, respectively), to be self-employed (17% versus 12%), to have flextime (32% versus 29%) and to have flexible working arrangements (27% versus 16%) (Fast and Frederick, 1996, p. 16).

Child Care

With more and more women entering the labour force, accessible high-quality child care is increasingly important. There is evidence to suggest that child-care arrangements are not meeting the changing needs of Canadian families.

Child-care services and subsidies are in high demand.

In 1994–95, 32.4% of children under age 12 (1.5 million children) were in some form of non-parental child care while their parents worked or studied. Of these, just over one third (34.2%) received unregulated care in the home of a non-relative, and slightly more than one quarter (26.9%) were in regulated care. Almost one quarter (23.9%) were cared for by a relative (including a sibling), or cared for themselves (Ross, Scott and Kelly, 1996, p. 25). See **Exhibit 2.4.** We also know that in the same year:

- There were 360,000 regulated child-care spaces for children under age 13; for the 1 million preschool children whose parents were working or studying more than 20 hours per week, there were an additional 270,000 such spaces (HRDC, 1994, p. 53).
- Approximately 42% of regulated day-care spaces in Canada were subsidized for low-income families (HRDC, 1994, p. 53).

Between the early 1970s and the late 1980s, the annual growth of child-care spaces Canada-wide ranged from 10% to 16%. However, there has been a slower growth rate since 1990. In 1995, the rate of growth was 4.7%, which is fairly typical of growth rates during this decade (HRDC, 1995 and 1996, pp. 3, 9).

In recent years, both the number of child-care subsidies for low-income parents and operating or wage grants to child-care providers were reduced in many provinces. Some provincial governments have also lowered standards for child-care facilities and have cut back on monitoring and enforcement of regulations (CCSD, 1997, p. 30).

2.4 Distribution of children aged 0 to 11, by type of non-parental child-care arrangement, Canada, 1994–95

Primary care arrangement	% of children
Unrelated family home day care, unregulated	34.2
Care by relative, in child's or someone else's home	21.4
Child-care centre, regulated	15.7
In child's home by non-relative, unregulated	14.2
Unrelated family home day care, regulated	7.2
Before and/or after school program regulated	4.0
Sibling or self-care	2.5
Other	0.7[a]

[a] Estimate less reliable due to high sampling variability.

Source: Adapted from D.P. Ross, K. Scott and M.A. Kelly (1996). "Overview: Children in Canada in the 1990s." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 25.

Siblings play an important role.

In 1988, 23% (340,000) of children in Canada aged 6 to 12 years who required care spent at least some time alone or with a sibling under age 13 while parents worked at a job or business. Self-care or care by a sibling was the primary care arrangement for 7% of children aged 6 to 9, and 21% of children aged 10 to 12 (Lero and Johnson, 1994, p. 33).

First Nations communities have limited access to child-care services.

Very little national data exist concerning child-care services in First Nations communities. It is understood that Aboriginal peoples' conceptions of child care tend to be more holistic and involve extended family than is the case for the general Canadian population. The most recent data indicate that there are only 68 child-care centres in more than 1,000 First Nations communities in Canada (National Inquiry into First Nations Child Care, 1989).

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Changing needs require changing services.

Supply of regulated day-care spaces has not kept pace with demand. Demand for licensed child care is not being met. A 1994 national study drew attention to the fact that less than half (45%) of children for whom licensed care was preferred by their parents received such care. Parents surveyed cited several reasons why alternatives were used:

- licensed care was unavailable or in short supply (70%),
- licensed care arrangements were too expensive (22%), and
- hours when care was available did not match parents' work schedules (8%) (Lero and Johnson, 1994, pp. 34–35).

There are other indications that child-care services are not meeting the needs of a changing workplace. Because most child-care centres are open during "standard" hours only, parents who work evenings or weekends may have considerable difficulty finding non-parental child care (Lero et al., 1992, p. 63).

Youth Employment

Youth unemployment is higher than in the general population, even though young people are more highly educated than in the past. The outlook for young people with post-secondary education is good, while females who drop out of high school may have more difficulty finding a job than do male drop-outs.

Youth unemployment is increasing.

Between 1989 and 1995, the number of working 15- to 24-year-olds fell about 500,000, while adult employment numbers rose 1 million. This difference has been largely attributed to the lack of experience or seniority of youth (HRDC, 1996, p. 3). With increased computerization and demand for highly educated employees, youth are often the ones to be turned away from prospective jobs (CCSD, 1997, p. 51).

Leaving high school may have more serious consequences for females than for males. According to the *1995 School Leavers Follow-up Survey*, 30% of young women high school drop-outs are unemployed, compared with 17% of young men (HRDC and Statistics Canada, 1996, p. 5). Interestingly, two thirds of high school drop-outs are male.

In 1995, approximately four out of five people who graduated from university or college in 1990 were employed full time, with less than 10% working in jobs unrelated to their education.

Young people are working in part-time, low-paying jobs.

More young people are working part time. In 1994, 40% of teenagers (including students and non-students) were employed — 80% on a part-time basis (CCSD, 1996, p. 54). In 1996, 20% of all non-student employment was part time, up from 6% in 1976 (Statistics Canada, 1997, p. 30).

Youth are likely to find work in low-paying, service sector jobs. Of 15- to 18-year-old secondary school students who worked in 1995, most (89%) were employed in service jobs. Two thirds worked in accommodation, food and beverage services, or in a retail trade (Greenon, 1998, p. 86).

In 1995, secondary students earned an average of $6.66 an hour, while their post-secondary counterparts averaged $8.13 per hour (Greenon, 1998, p. 87).

Post-secondary education contributes to employability.

In 1995, approximately four out of five people who graduated from university or college in 1990 were employed full time, with less than 10% working in jobs unrelated to their education. More than two thirds of trade/vocational graduates had full-time jobs (HRDC, 1998, p. 1). See **Exhibit 2.5.**

Both employment and earnings for post-secondary graduates have remained stable since 1982. Three HRDC/Statistics Canada studies of 1982, 1986 and 1990 graduates, five years after graduation, show that the proportion of college and university graduates with full-time jobs remained fairly constant (HRDC, 1998, p. 2).

2.5 Unemployment rates for youth aged 15 to 24, by educational attainment, Canada, selected years, 1980 to 1995

Year	Primary education (0–8 years)	Some or completed high school	Some post-secondary	Post-secondary certificate or diploma	University degree
1980	22.2	14.0	9.3	8.7	7.0
1985	27.4	18.9	11.7	10.3	9.7
1990	25.0	14.6	9.3	8.7	6.6
1995	27.0	18.7	12.4	11.0	8.6

Source: Prepared by the Canadian Council on Social Development using data from Statistics Canada *Labour Force Annual Averages, Selected Years*. In Canadian Council on Social Development (1997). *The Progress of Canada's Children — 1997*. Ottawa: CCSD, p. 52.

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Source: Prepared by the Canadian Council on Social Development using data from Statistics Canada *Labour Force Annual Averages, Selected Years.* In Canadian Council on Social Development (1997). *The Progress of Canada's Children — 1997.* Ottawa: CCSD, p. 52.

Employment and Other Determinants

Education

Employment interacts with education to affect health outcomes. For instance, the more education people have, the less likely they are to be unemployed at any time in their lives. Furthermore, people with fewer than nine years of education are more likely than those with higher education levels to have unrewarding, low-paying jobs. They are also more likely to have jobs that are characterized by a high rate of occupational injuries, to experience periods of unemployment, and to rely on social assistance (Chevalier et al., 1995, as cited in Working Group on Community Health Information Systems, 1995, p. 72).

Parents' education has been linked to work status and household income — those with higher educational qualifications are more likely to hold higher-paying jobs (Ross, Scott and Kelly, 1996, p. 36).

Education greatly affects young people's chances of being employed. Nearly 19% of youth aged 15 to 24 with high school education or less were unemployed in 1995, compared with less than 9% of those with a university degree. These rates are similar to those in 1985, but higher than those in 1990 (CCSD, 1997, p. 10). See **Exhibit 2.5.**

Working teens are less likely to drop out of school. However, teenagers who work more than 20 hours a week are at risk for leaving school early (CCSD, 1996, p. 54). In 1993, teens 14 to 17 years old made a significant contribution to their family incomes, earning more than $2 billion dollars collectively (CCSD, 1996, p. 54).

Genetic and Biological Factors

As more and more children with genetic, developmental and psychiatric disorders enter adulthood, there will be an increased requirement for suitable jobs — those that provide dignity and remuneration, and are geared to their special abilities.

Culture

It has been established that culture has an impact on the education and occupation of an individual, as well as the education and occupation of the person's spouse. This affects income, knowledge of support structures, access to informal support and personal coping skills (Erickson, 1991, p. 4).

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Chapter

3

Education

Overview

Education level is positively associated with health status and health behaviours. Moreover, educational attainment is widely acknowledged as an important determinant of socio-economic status and income, which are both key determinants of health.

Many factors contribute to how well children perform in the formal education system. Parents' education level and involvement in their child's schooling, as well as overall readiness for school are all contributors to the child's level of achievement in school and to how long he or she stays in school. Early school leavers fare poorly in the job market compared with youth with high school or university education.

Relationship to Healthy Child Development

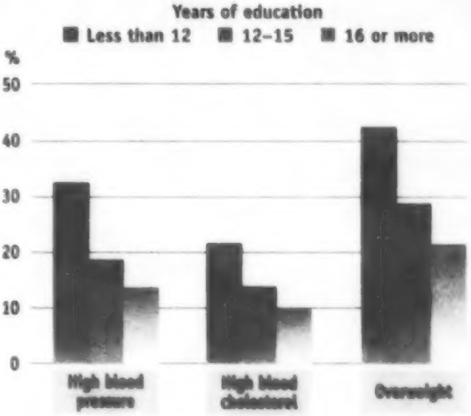
Education is a tool for life.

Education contributes to health and prosperity by equipping people with the knowledge and skills needed for problem solving and by giving them a sense of control over their life circumstances. Education also improves people's ability to access and understand information that can keep them healthy (Federal, Provincial and Territorial Advisory Committee on Population Health, 1994, pp. 17–18). In fact, research demonstrates a two-way connection between health and learning — doing poorly and/or expecting to do poorly in school are associated not only with school failure, but also with such behaviours as delinquency, substance abuse and teen pregnancy (Dryfoos, 1990, p. 94).

More education means better health.

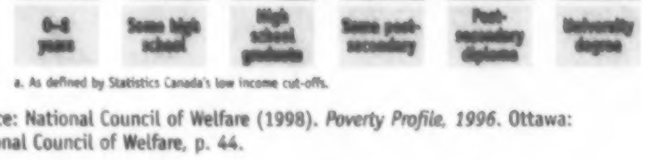
Health status improves with level of education. In general, as education increases, "self-rated health status improves, while activity limitation and the number of workdays lost due to illness or injury decreases. People with a university degree are about half as likely to have high blood pressure, high blood cholesterol, or to be overweight, as are those with less than high school education" (Federal, Provincial and Territorial Advisory Committee on Population Health, 1996, p. 29). See **Exhibit 3.1**. The highest educated group is also the least likely to live in poverty (National Council of Welfare, 1998, p. 44). See **Exhibit 3.2**.

3.1 **Proportion of adults aged 15+ with selected health risk factors, by number of years of education, Canada, 1994–95**



Source: Federal, Provincial and Territorial Advisory Committee on Population Health (1996). *Report on the Health of Canadians.* Catalogue No. H39-385/1996-1E. Ottawa: Health Canada, p. 29.

3.2 **Poverty rates[a] among adults aged 15+, by highest level of education completed, 1996**



a. As defined by Statistics Canada's low income cut-offs.

Source: National Council of Welfare (1998). *Poverty Profile, 1996*. Ottawa: National Council of Welfare, p. 44.

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Children need to be ready for school.

There is good evidence that early childhood intervention programs can be successful in promoting children's capacity to learn, their social success and their success in school. The effects of these programs are most dramatic with disadvantaged children (Hertzman, 1996).

The impact of school readiness goes well beyond early academic and social accomplishments. Children who have the appropriate level of cognitive, emotional, language and physical skills are more likely to stay in school, graduate from high school, find employment, and contribute to society as caring individuals and taxpayers (Doherty, 1996).

Preschool ability sets the stage for children's transition into the formal school system. Children who have not learned skills such as colour naming, sorting, counting, letters and the names of everyday objects are at a disadvantage compared with children who have mastered these skills. Teachers tend to rate children in these skills early on (Entwistle and Alexander, 1989).

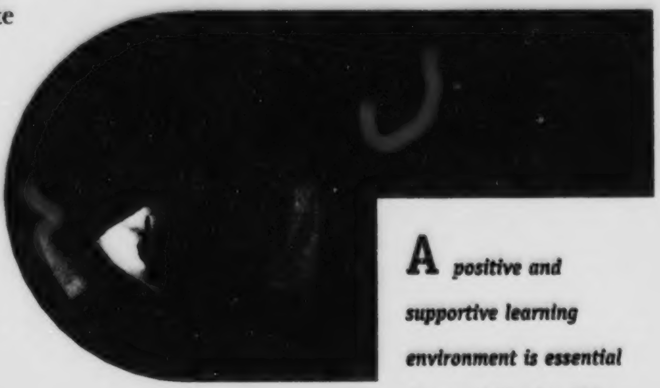
Literacy and Age

People with high literacy skills are more likely to hold higher paying jobs. A 1997 international study on adult literacy shows a dramatic link between age and literacy levels. This link is largely accounted for by differences in education levels attained. In addition, for young people (aged 16 to 25 years), mothers' education level and fathers' occupation are both strong predictors of literacy levels (Willms, 1997).

Young people need to stay in school.

A positive and supportive learning environment is essential for acquiring the skills and social capacities children need to make their way through adolescence. Youth who do not complete school are more likely to be at a disadvantage regarding employment, income and life opportunities (Statistics Canada, 1993a, p. 2).

The personal costs of premature departure from school are an increased likelihood of poor health, delinquency, crime, substance abuse and economic dependency, and a lower quality of life (Statistics Canada, 1993a, p. 4).



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Conditions and Trends

Education Level of Parents

Parents' education — together with income and labour-market status — is associated with a variety of child outcomes, including academic achievement (Ross, Scott and Kelly, 1996, p. 36). Generally speaking, children's early educational performance is influenced by the education level of their mothers (Willms, 1996, p. 73).

Children need to be ready for school.

There is good evidence that early childhood intervention programs can be successful in promoting children's capacity to learn, their social success and their success in school. The effects of these programs are most dramatic with disadvantaged children (Hertzman, 1996).

The impact of school readiness goes well beyond early academic and social accomplishments. Children who have the appropriate level of cognitive, emotional, language and physical skills are more likely to stay in school, graduate from high school, find employment, and contribute to society as caring individuals and taxpayers (Doherty, 1996).

Preschool ability sets the stage for children's transition into the formal school system. Children who have not learned skills such as colour naming, sorting, counting, letters and the names of everyday objects are at a disadvantage compared with children who have mastered these skills. Teachers tend to rate children in these skills early on (Entwistle and Alexander, 1989).

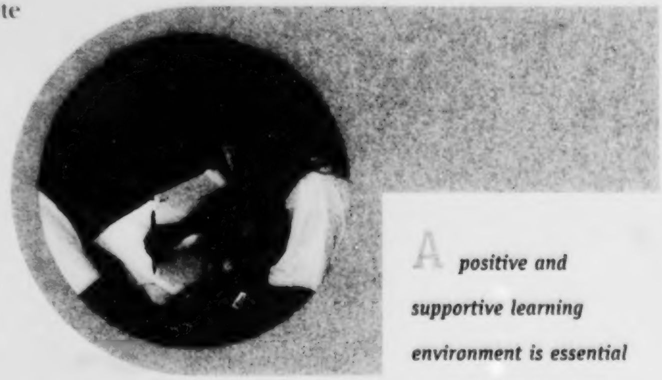
Literacy and Age

People with high literacy skills are more likely to hold high-paying jobs. A 1997 international study on adult literacy shows a dramatic link between age and literacy levels. This link is largely accounted for by differences in education levels attained. In addition, for young people (aged 16 to 25 years), mothers' education level and fathers' occupation are both strong predictors of literacy levels (Willms, 1997).

Young people need to stay in school.

A positive and supportive learning environment is essential for acquiring the skills and social capacities children need to make their way through adolescence. Youth who do not complete school are more likely to be at a disadvantage regarding employment, income and life opportunities (Statistics Canada, 1993a, p. 2).

The personal costs of premature departure from school are an increased likelihood of poor health, delinquency, crime, substance abuse and economic dependency, and a lower quality of life (Statistics Canada, 1993a, p. 4).



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Conditions and Trends

Education Level of Parents

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The education level of Canadians is increasing.

The number of people 15 years of age and older without a Grade 9 education fell from more than 30% in 1971 to just less than 14% in 1991 (Federal, Provincial and Territorial Advisory Committee on Population Health, 1996, p. 37). See **Exhibit 3.3**. In 1971, nearly one quarter of 15- to 24-year-olds had at least some post-secondary education — this rose to well over one third (39%) by 1996 (Statistics Canada, 1998a).

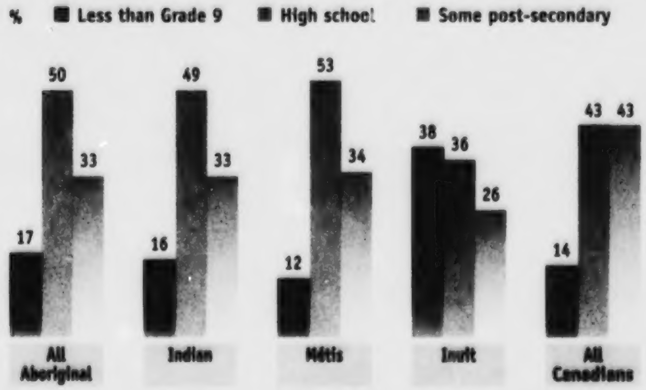
3.3 **Population aged 15+, by highest level of education completed, Canada, selected years**

	1976	1981	1986	1991	1996
			Number		
Total	**16,890,350**	**18,609,285**	**19,634,100**	**21,304,740**	**22,628,925**
Less than Grade 9	4,285,390	3,851,285	3,473,640	3,051,900	2,812,015
Grades 9 to 13	7,440,765	8,122,465	8,354,030	9,071,580	9,131,775
Some post-secondary	4,077,825	5,145,355	5,927,950	6,761,505	7,684,435
University degree	1,086,370	1,490,180	1,878,480	2,419,750	3,000,695

Source: Adapted from the Statistics Canada Web site: www.statcan.ca

While there have been steady improvements in educational achievement over the years, Aboriginal peoples still have lower education levels than non-Aboriginal Canadians. According to the Aboriginal Peoples Survey, in 1991, 17% of 15- to 64-year-old Aboriginal people had fewer than nine years of schooling, 50% had completed high school, and one third had some post-secondary education (Statistics Canada, 1993b, p. 2). See **Exhibit 3.4**.

3.4 **Highest level of educational attainment achieved, adults aged 15 to 64, by Aboriginal peoples and all Canadians, Canada, 1991**



Source: Statistics Canada. *Schooling, Work and Related Activities, Income, Expenses and Morbidity, 1991 Aboriginal Peoples Survey, 1993*. Cited in Canadian Institute of Child Health (1994). *The Health of Canada's Children: A CICH Profile*, 2nd edition. Ottawa: CICH, p. 137.

Women's overall level of education is increasing. In 1992–93, women represented 53% of all undergraduate students, 46% of full-time master's degree students and 35% of full-time doctoral students, an increase from 43%, 27% and 19%, respectively, in 1972–73 (Normand, 1995, p. 19).

Parents' education level affects children's academic achievement.

The National Longitudinal Survey of Children and Youth (NLSCY) found that the education level of the person most knowledgeable about the child (most often the mother) was a significant predictor of children's verbal ability at ages 4 and 5, and of children's mathematics achievement in grades 2 and 4 (Willms, 1996, p. 73).

Parents' level of education is also associated with the value placed on education within the family. "Parents with higher levels of education tend to place a greater value on the importance of academic achievement and are likely to spend more time reading to their children and helping them do their homework." In 1994–95, the vast majority (83.7%) of children under age 12 lived with parents who had at least a high school diploma (Ross, Scott and Kelly, 1996, p. 37). See **Exhibit 3.5**.

Immigrant Children and Education

Immigrant youth often experience disruptions in their education. In some cases, they may be too old to enter the school system in Canada and, at the same time, be unqualified to begin work (Multiculturalism and Citizenship Canada, 1988, p. 65).

More than half of immigrant children between 4 and 17 years of age who came to Canada between 1981 and 1988 did not speak either official language. While these children may obtain lower marks in English than do Canadian-born children, they perform very well in mathematics (Samuel and Verma, 1992, pp. 53–56).

3.5 Distribution of children aged 0 to 11, by mothers' and fathers' education level, Canada, 1994–95

Level of education	Mother's education (%)	Father's education (%)
Less than high school	16.3	16.3
High school graduate	46.4	40.5
Diploma/certificate from trade or business school	8.9	13.2
Degree/diploma from university or college	28.3	29.9
Total	**100.0**	**100.0**

Source: Adapted from D.P. Ross, K. Scott and M.A. Kelly (1996). "Overview: Children in Canada in the 1990s." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 37.

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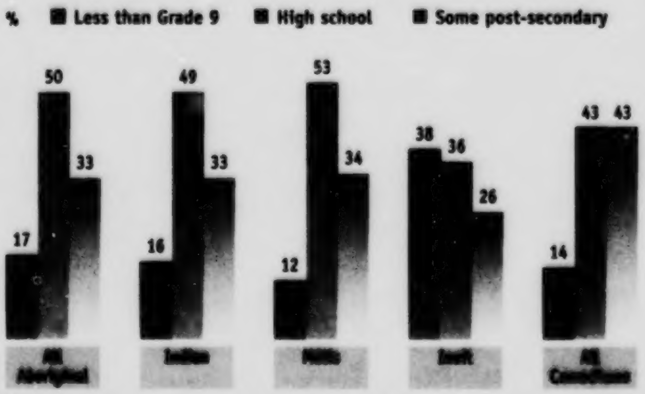

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Role of Families

Parents' involvement in preparing their children for school provides children with a stronger base for learning from their school experience, while continued parental interest in schooling can have a positive effect on children's academic performance. School-aged children whose parents are involved in such activities as helping with homework and assisting in the classroom tend to do better academically. We know that:

Most parents are involved in preparing their children for school.

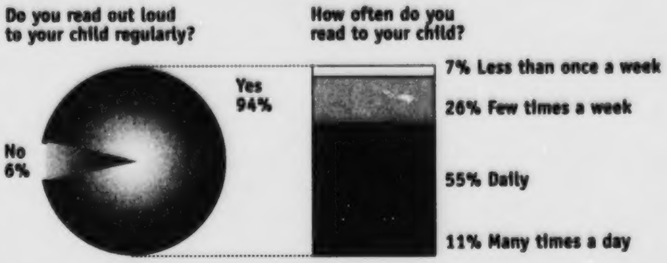
In 1994–95, parents of more than half of infants and toddlers up to age 2 showed their youngsters picture books daily, and most (94%) read aloud to their children every day. See **Exhibit 3.6**. The parents of more than 50% of children aged 2 to 5 also helped them with writing every day, while another 30% did so a few times a week (CCSD, 1997, pp. 45–46).

Teachers surveyed in 1994–95 as part of the NLSCY reported that two thirds of their students had parents who were "very involved" in their children's education, suggesting that these parents recognize the vital role they play in their children's learning (CCSD, 1997, p. 46).

Parents' involvement affects children's achievement.

Children whose parents had little interest in their schooling were seven times more likely to have repeated a grade than children whose parents placed a great deal of importance on education. Children who failed at math were more likely to have parents who did not take an active interest in their education (CCSD, 1997, p. 46).

3.6 **Distribution of parent(s) who read to their children aged 2 to 5, by frequency of reading, Canada, 1994**



Source: Prepared by the Canadian Council on Social Development using data from Statistics Canada's National Longitudinal Survey of Children and Youth, 1994. In Canadian Council on Social Development (1997). *The Progress of Canada's Children — 1997*. Ottawa: CCSD, p. 46.

School Readiness

Being ready for school helps to set the stage for success in school as well as in future work and social life. Children who do well in school often approach school "ready to learn." These children have already been exposed to books and numbers, they have been introduced to problem-solving techniques, and they have developed the social skills needed in group settings (Ross, Scott and Kelly, 1996, p. 24).

Overall, most children who enter school are "ready to learn." Children from higher income families, and those whose parents have more education, tend to be ready more so than other children.

Children with Disabilities and Education

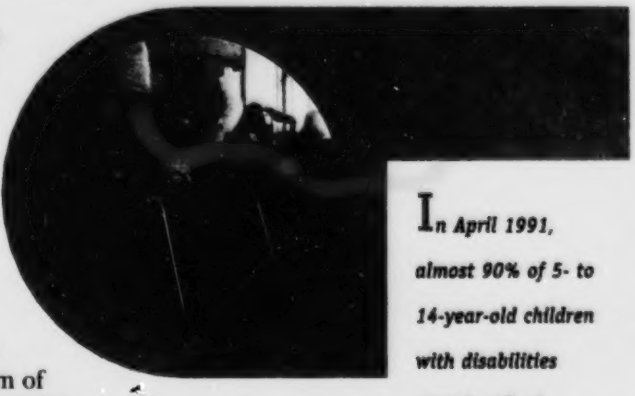
"In April 1991, almost 90% of 5- to 14-year-old children with disabilities were in school. Of the 9,550 (3.1%) who were not in school or being tutored, 6,325 had never attended school and 3,225 had attended school before April 1991" (CICH, 1994, p. 158). See Exhibit 3.7.

According to the NLSCY, 4% of Canadian children under age 12 have a learning disability (CCSD, 1997, p. 58). The Health and Activity Limitation Survey (HALS) estimates that learning disabilities are the most common disabilities among children under age 15 (Statistics Canada, 1994, p. xxxv). Yet these disabilities often are undiagnosed until a child has failed at school. The school drop-out rate for children with learning disabilities is 35% — twice that of their non-disabled peers (Bullivant, 1997, pp. 1–2).

Parents' education and income have an impact on school readiness.

Results of the NLSCY show no significant differences between boys and girls on one measure of school readiness — the Peabody Picture Vocabulary Test (PPVT). However, there were differences among children according to the educational attainment of their parents. **Exhibit 3.8** shows that children who lived with one or two highly educated parents were more likely to do well on the PPVT than children who lived with one or two parents who had not graduated from high school (Ross, Scott and Kelly, 1996, p. 24).

Compared with their peers from the highest socio-economic group, children from the lowest socio-economic group are more likely to be at the bottom of their class in reading, writing and math abilities (Lipps and Frank, 1997).



In April 1991, almost 90% of 5- to 14-year-old children with disabilities were in school.

Nationally, one quarter of children from low-income families were verbally delayed in their development, compared with one sixth of the children in middle-income families, and less than one tenth of those from families with the highest incomes (Ross, Scott and Kelly, 1996, p. 42).

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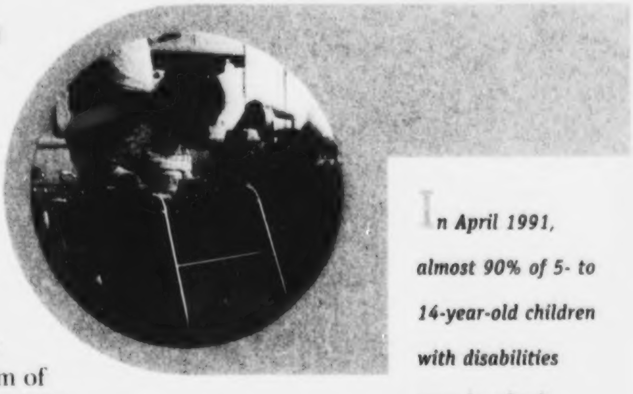

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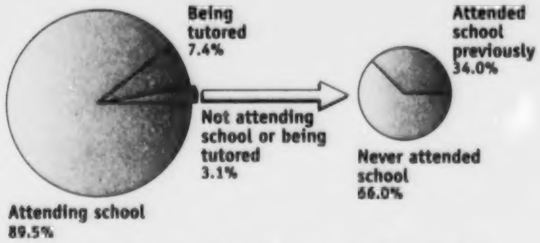
3.7 Distribution of children with disabilities aged 5 to 14, by those attending school or being tutored, Canada, April 1991



Source: Canadian Institute of Child Health using Statistics Canada's Health and Activity Limitation Survey (HALS) 1991 unpublished data. In Canadian Institute of Child Health (1994). *The Health of Canada's Children: A CICH Profile*, 2nd edition. Ottawa: CICH, p. 158.

3.8 Distribution of children aged 4 to 5, by child's school readiness[a] and parents'[b] education, 1994–95

Child outcome on PPVT[c] (4 to 5 years)	Less than high school graduate (%)	High school graduate (%)	Diploma/certificate from trade or business school (%)	Degree/diploma from university or college (%)
Advanced development	7.6[d]	10.4[d]	12.0[d]	22.5
Normal development	57.4	73.1	72.6	66.0
Delayed development	35.0	16.6	15.4	11.6[d]

a. As measured by the Peabody Picture Vocabulary Test (PPVT) or the Échelle de vocabulaire en images Peabody (EVIP).

b. Based on the spouse with the highest education credential (in two-parent families).

c. Peabody Picture Vocabulary Test.

d. Estimate less reliable due to high sampling variability.

Source: Adapted from D.P. Ross, K. Scott and M.A. Kelly (1996). "Overview: Children in Canada in the 1990s." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 24.

Provincial governments play a role.

Funding for kindergarten programs is being cut in many provinces; therefore, fewer children aged 3 to 5 have access to high-quality preschool learning programs. Ontario's government has made junior kindergarten optional, and some school boards have cancelled the program altogether. The Newfoundland government has "frozen" funds for kindergarten programs, while Alberta has reduced the number of kindergarten program hours from 480 to 400. In Nova Scotia, half-day rather than full-day kindergarten programs are provided (CCSD, 1996, p. 29).

Staying in School

More young people are attending school, which is a positive trend particularly in light of the fact that it is becoming increasingly difficult for young people who drop out of high school to succeed in a highly competitive job market.

More young people are staying in school.

The proportion of young men and women (aged 15 to 19) attending school has been steadily increasing in Canada. In 1961, 62% of young men and 56% of young women were attending school. By 1991, the percentages had risen to 79% and 80%, respectively (Normand, 1995, p. 20).

Young people (aged 18 to 20 years) who stay in school are more likely than their counterparts who drop out to believe that school is relevant to their lives (Statistics Canada, 1993a, p. 28).

Who's Ready for School?

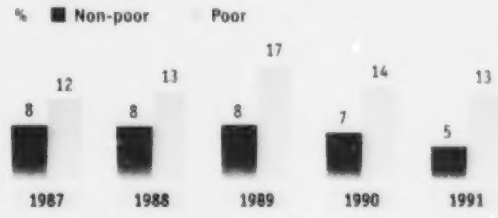
School readiness refers to a child's ability to meet the demands of school and to learn the content of the curriculum that is appropriate for his or her grade at the time of entry into the school system (Kagan, 1992). Research has identified five components of school readiness:

- *physical well-being and motor development,*
- *emotional health and positive approach to new experiences,*
- *social knowledge and competence,*
- *language skills, and*
- *general knowledge and cognitive skills (Kagan, 1992, p. 50).*

Some people are more likely than others to drop out of school.

- In 1991, poor[1] youth were almost three times more likely to drop out of school than non-poor youth (CICH, 1994, p. 122). See **Exhibit 3.9**.
- The school drop-out rate in 1991 among 20-year-olds was 22% for males and 14% for females (Statistics Canada, 1993a, p. 17).
- Aboriginal youths experienced particularly high rates of early school leaving; in fact, 40% of all 18- to 20-year-olds in this group drop out of high school (Statistics Canada, 1993a, p. 23).
- The school drop-out rate for children with learning disabilities (the most common long-term disability suffered by children under age 15) is 35% (Bullivant, 1997, pp. 1–2).
- Young people who drop out of school are more likely: to be living with neither parent; to come from single-parent homes; to have parents who have low levels of education or blue-collar jobs; to be married; to have children; or to have disabilities (Statistics Canada, 1993a, p. 24).

3.9 **School drop-out rates for poor[a] and non-poor youth aged 16 and 17, Canada, 1987 to 1991**



a. Youth living below Statistics Canada's low income cut-offs.

Source: Prepared by the Canadian Council on Social Development, Centre for International Statistics on Economic and Social Welfare for Families and Children, Newsletter No. 1, July 1993. In Canadian Institute of Child Health (1994). *The Health of Canada's Children: A CICH Profile*, 2nd edition. Ottawa: CICH, p. 122.

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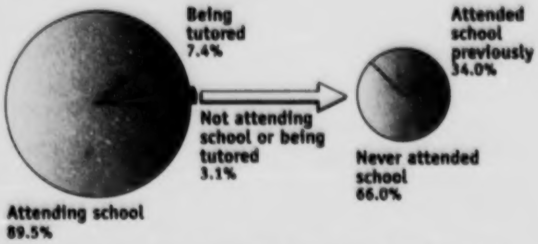

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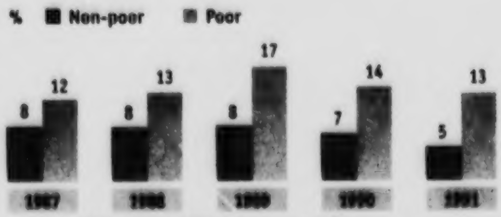

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Women's enrollment in first-year medical school programs has been steadily increasing.

The Gender Barrier

Young women remain underrepresented in physical science courses, including physics and chemistry, and are underrepresented in undergraduate engineering and applied sciences. In 15 major trades, just 1% of all apprentices registered in 1992 were women.

At the community college level, in 1991–92, women accounted for only 32% of enrollment in natural science and primary industry programs, 30% in maths/computer science, and 12% in engineering and other technologies. In contrast, women made up 96% of enrolees in secretarial science, 89% in nursing and 90% in education and counselling services (Statistics Canada, 1995, pp. 59–61).

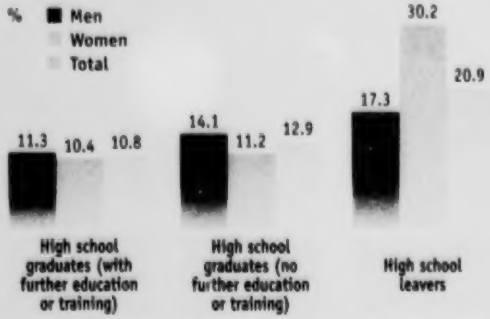
Women's enrollment in first-year medical school programs has been steadily increasing. In the 1996–97 academic year, women composed 50.5% of first-year medical school enrolees, up from 45.5% in 1990–91, 40% in 1980–81, and 21% in 1970–71 (Association of Canadian Medical Colleges, 1997, Table 18).

Dropping out costs money.

A 1992 study calculated that, over their collective lifetimes, all children dropping out of school in Canada in 1989 would cost Canadian taxpayers a cumulative total of $4 billion (Lafleur, 1992).

Young women who drop out of high school are more likely than young male leavers to be unemployed; in fact, 30% of young female drop-outs were unemployed in 1995, compared with 17% of male drop-outs (HRDC and Statistics Canada, 1996, p. 5). See **Exhibit 3.10**.

3.10 **Unemployment rates among high school graduates and leavers, by sex, Canada, 1995**



Source: Adapted from Human Resources Development Canada and Statistics Canada (1996). *After High School: The First Years — The First Report of the School Leavers Follow-up Survey, 1995*. Catalogue No. MP78-4/12-1996. Ottawa: Human Resources Development Canada and Statistics Canada, p. 5.

Women's enrollment in first-year medical school programs has been steadily increasing.

The Gender Barrier

Young women remain underrepresented in physical science courses, including physics and chemistry, and are underrepresented in undergraduate engineering and applied sciences. In 15 major trades, just 1% of all apprentices registered in 1992 were women.

At the community college level, in 1991–92, women accounted for only 32% of enrollment in natural science and primary industry programs, 30% in maths/computer science, and 12% in engineering and other technologies. In contrast, women made up 99% of enrolees in secretarial science, 89% in nursing and 90% in education and counselling services (Statistics Canada, 1995, pp. 59–61).

Women's enrollment in first-year medical school programs has been steadily increasing. In the 1996–97 academic year, women comprised 50.5% of first-year medical school enrolees, up from 43.5% in 1990–91, 40% in 1980–81, and 21% in 1970–71 (Association of Canadian Medical Colleges, 1997, table 18).

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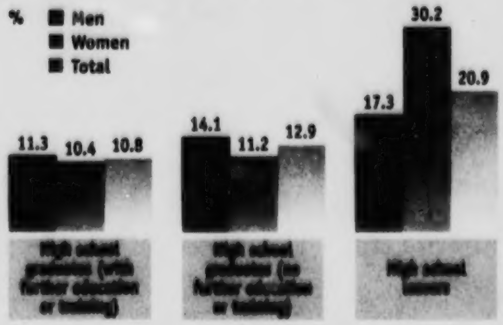


Source: Adapted from Human Resources Development Canada and Statistics Canada (1996). *After High School: The First Years — The First Report of the School Leavers Follow-up Survey, 1995*. Catalogue No. MP78-4/12-1996. Ottawa: Human Resources Development Canada and Statistics Canada, p. 5.

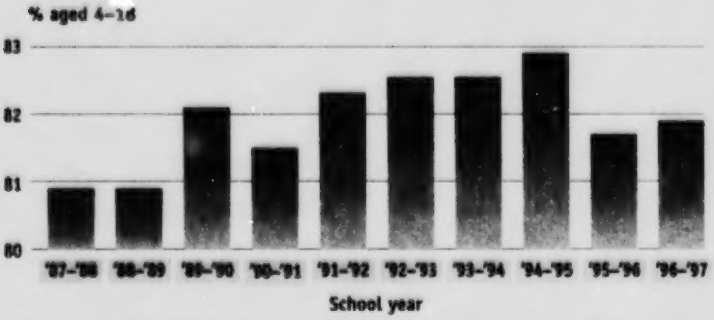
More on-reserve Aboriginal children are in school.

The total number of on-reserve children enrolled in kindergarten programs and elementary and secondary schools increased 33% between 1987–88 and 1996–97, from 84,271 to 112,060 (DIAND, 1998, p. 30).

The percentage of Registered Indian school-aged children on reserve enrolled in kindergarten programs and elementary and secondary schools increased marginally, from 80.9% in 1987–88 to 82% in 1996–97 (DIAND, 1998, p. 30). See **Exhibit 3.11**.

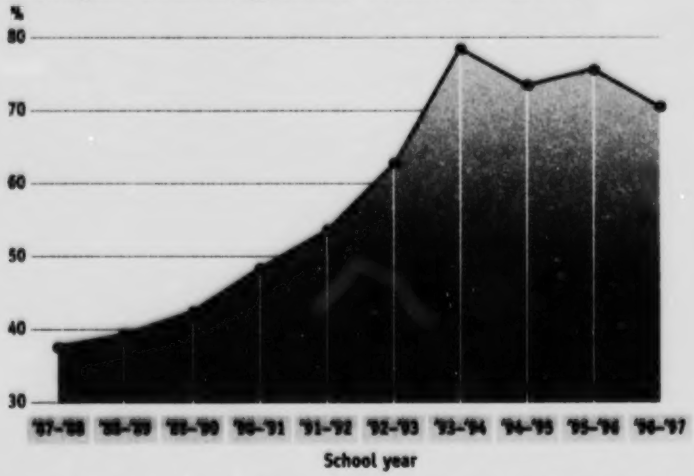
Moreover, on-reserve Indian children are remaining in school longer. The proportion of Aboriginal children who remain in school until Grade 12 almost doubled between 1987–88 (37%) and 1996–97 (71%) (DIAND, 1998, p. 31). See **Exhibit 3.12**.

3.11 **Proportion of on-reserve registered Indian population aged 4 to 18 enrolled in kindergarten, elementary and secondary schools, Canada, 1987–88 to 1996–97**



Source: Department of Indian Affairs and Northern Development (1998). *Basic Departmental Data 1997*. QS3575-000-BB-A1, Catalogue No. R12-7/1997. Ottawa: DIAND, p. 30.

3.12 **Proportion of on-reserve students remaining until Grade 12 for consecutive years of schooling, Canada, 1987–88 to 1996–97**



Source: Department of Indian Affairs and Northern Development (1998). *Basic Departmental Data 1997*. QS-3575-000-BB-A1, Catalogue No. R12-7/1997. Ottawa: DIAND, p. 31.

University enrollment is decreasing — slightly.

From 1993 to 1996, full-time post-secondary enrollment in university declined for males, from 272,644 in 1993–94 to 260,436 in 1997–98. However, during the same period, full-time enrollment for females steadily increased — from 301,670 in 1993–94 to 312,663 in 1997–98 (Statistics Canada, 1998b).

For Registered Indians and Inuit, the story is different. The number of Registered Indians and Inuit enrolled in post-secondary institutions almost doubled between 1987–88 and 1996–97, rising from 14,242 to 27,487. In 1996–97, enrollment increased an additional 304 from the previous year (DIAND, 1998, p. 32).

University Tuition Fees

Over the last decade, every province has increased university tuition fees in response to funding constraints. As a result, more students are seeking financial assistance from federal and provincial loans programs, and the average debt load for a four-year graduate has grown from [illegible] to $22,000 in 1997. Access to post-secondary education could be undermined by rising costs and concern about student debt (CCSD, 1997, p. 48).

Undergraduate enrollment at Canadian universities has declined over the past five years ([illegible] between 1992–93 and 1997–98). This decline is due entirely to the sharp drop in enrollment of part-time undergraduates. Full-time undergraduate enrollment has remained steady (Statistics Canada, [illegible]).

Education and Other Determinants

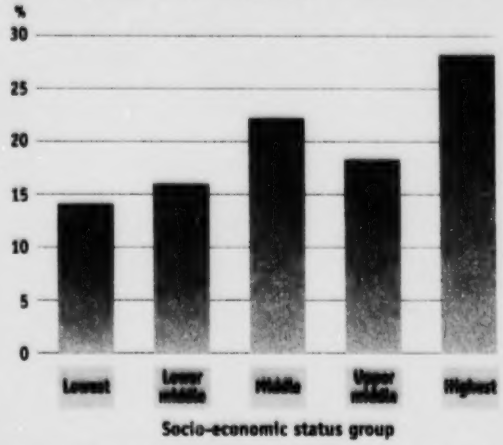
Income

The results of teachers' assessments of reading, writing and mathematical abilities revealed that children from families in the lowest quintile of socio-economic status fared worse than children from the highest quintile. They also showed that when children in elementary schools were ranked by socio-economic group, those in the lowest income group were three times more likely to be placed in remedial education classes and twice as likely to repeat a grade. Conversely, children from families with the highest socio-economic status were twice as likely to be in gifted education programs (Lipps and Frank, 1997, p. 56). See **Exhibit 3.13**. Another study demonstrated that growing up in persistent or concentrated poverty is related to school failure, which in turn can lead to truancy, dropping out of school, behaviour problems and delinquency (Evans, 1995, pp. 19, 24).

A 1998 study showed the poverty rate for families led by single-parent mothers with less than a high school education was 87.2% — by far the highest rate among all those who did not graduate from high school. Single-parent mothers who did graduate had a poverty rate of 51.8% — again the highest of any family type (National Council of Welfare, 1998, p. 43).

There is evidence that people with fewer than nine years of education are more likely to have unrewarding, low-paying jobs. They are also more likely to have jobs that are characterized by a high rate of occupational injuries, to experience periods of unemployment, and to rely on social assistance (Chevalier et al., 1995, as cited in Working Group on Community Health Information Systems, 1995, p. 72).

3.13 **Proportion of children aged 4 to 11 scoring in the top 20% of mathematics computation test scores, by socio-economic status group, Canada, 1994–95**



Source: Adapted from G. Lipps and J. Frank (1997). "The National Longitudinal Survey of Children and Youth, 1994–95: Initial results from the school component." *Education Quarterly Review*, Vol. 4, No. 2: 43–57. Catalogue No. 81-003-XPB. Ottawa: Statistics Canada, p. 56.

Employment

A 1995 study revealed that young people aged 22 to 24 without a high school diploma were more likely to be unemployed than high school graduates. The unemployment rate among those without a high school diploma was 21%, compared with 13% for those with a high school diploma but no further education. Individuals with both a high school diploma and further education had the lowest unemployment rate (11%) (HRDC and Statistics Canada, 1996, p. 5).

Social Environment

The family environment appears to play an important role in preparing children for school. The NLSCY reports that positive parenting is associated with normal and advanced scores on school readiness tests (Ross, Scott and Kelly, 1996, p. 42).

On-Reserve Enrollment and First Nations Control of Education

[illegible] *First Nations* [illegible] The proportion of children enrolled [illegible] the proportion enrolled in [illegible] More specifically:

- [illegible] from 31.4% in 1987–88 [illegible]
- [illegible] 1996–97 from [illegible]
- [illegible] from 45% in 1987–88 [illegible]

University enrollment is decreasing — slightly.

From 1993 to 1996, full-time post-secondary enrollment in university declined for males, from 272,644 in 1993–94 to 260,436 in 1997–98. However, during the same period, full-time enrollment for females steadily increased — from 301,670 in 1993–94 to 312,663 in 1997–98 (Statistics Canada, 1998b).

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University Tuition Fees

Over the last decade, every province has increased university tuition fees in response to funding constraints. As a result, more students are seeking financial assistance from federal and provincial loans programs, and the average debt load for a four-year graduate has grown from $8,700 in 1990 to $22,000 in 1997. Access to post-secondary education could be constrained by rising costs and concerns about student debt (CCSD, 1997, p. 49).

Undergraduate enrollment at Canadian universities has declined over the past five years (8.6% between 1992-93 and 1997-98). This decline is due entirely to the sharp drop in enrollment of part-time undergraduates. Full-time undergraduate enrollment has remained steady (Statistics Canada, 1998c).

Education and Other Determinants

Income

The results of teachers' assessments of reading, writing and mathematical abilities revealed that children from families in the lowest quintile of socio-economic status fared worse than children from the highest quintile. They also showed that when children in elementary schools were ranked by socio-economic group, those in the lowest income group were three times more likely to be placed in remedial education classes and twice as likely to repeat a grade. Conversely, children from families with the highest socio-economic status were twice as likely to be in gifted education programs (Lipps and Frank, 1997, p. 56). See **Exhibit 3.13**. Another study demonstrated that growing up in persistent or concentrated poverty is related to school failure, which in turn can lead to truancy, dropping out of school, behaviour problems and delinquency (Evans, 1995, pp. 19, 24).

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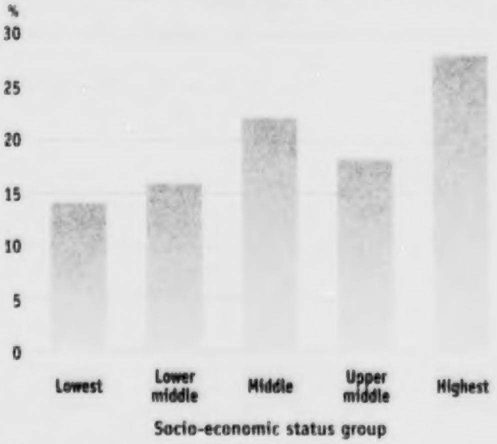

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Social Environment

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On-Reserve Enrollment and First Nations Control of Education

According to federal government data, the government's commitment to increased First Nations control of on-reserve education is reflected in enrollment trends. The proportion of children enrolled in band-operated elementary and secondary schools is increasing while the proportion enrolled in schools operated by federal or other authorities is declining. More specifically:

- ***The proportion of children enrolled in band-operated schools increased from 31.4% in 1987–88 to 57.3% in 1996–97.***
- ***The proportion of children enrolled in federal schools dropped to less than 2% in 1996–97 from 20.6% in 1987–88.***
- ***The proportion of students enrolled in provincial/private schools dropped from 48% in 1987–88 to 41% in 1996–97 (DIAND, 1998, p. 36).***

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Chapter

4

Social Environment

Overview

The relationships we have in our lives — including the support we receive from our family, friends and community — are directly associated with general health. Effective responses to stress and the support of family and friends seem to act as buffers against health problems. Conversely, studies have shown that low levels of emotional support and low social participation have a negative effect on health and well-being.

Primary supports (family and friends) and secondary supports (school and community) contribute significantly to healthy child and adolescent development. Parents themselves need a supportive environment in which to raise their children. Support from family, friends and neighbours is important in helping parents to cope with the stress of raising children.

A safe and violence-free environment within which children and youth can live, learn and grow is crucial to their optimal development. However, a significant number of men, women and children in Canada live with violence or with the fear of violence. Child maltreatment and abuse have devastating long-term outcomes for children and serious social and economic costs for society.

Relationship to Healthy Child Development

Strong family and social support protects children.

Children's social support is determined by their experiences with parents and caregivers, how their family functions, the nature of their whole community, and other factors in the broader society.

It is widely recognized that children need a significant and continuous relationship with at least one caring adult. Other factors contribute to children's health and well-being, including adults setting high expectations and expressing belief in children's ability, and their acknowledgement of children as valued participants in the life and work of their school, family and community (Benard, 1991).

The impact of positive early nurturing carries on into later life. Children who have a solid base of emotional security created by the experience of sensitive and responsive early nurturing will be more likely to have strong and enduring personal relationships later in life (Guy, 1997, p. 66).

Poor social support has negative consequences.

Just as strong support networks contribute to healthy child development, inadequate social support for children and their families is potentially very damaging. For example, children with a troubled home life in which supportive, caring relationships are lacking may suffer the consequences of poor social knowledge. In turn, these children may have difficulties maintaining stable and fulfilling relationships with others (Guy, 1997, pp. 64–65).

Children who have the opportunity to take part in a wide variety of activities and programs are more likely to view themselves as capable human beings and will seek out additional challenges.

Schools and community play a role.

Secondary support networks include the school and community, which provide support for children and their families, leisure and cultural activities, and safe and nurturing environments. Children's participation in school and community activities is important. Children who have the opportunity to take part in a wide variety of activities and programs are more likely to view themselves as capable human beings and will seek out additional challenges (Guy, 1997, p. 86).

Children's intellectual growth is stimulated by their relationships with the adults who guide their learning. A long-term mentoring relationship with at least one successful adult is also beneficial for healthy development (Werner and Smith, 1982).

Fear and violence have a negative impact on children.

Fear and violence in children's wider social environment have a significant influence on their health and well-being. Children are at risk of developing serious problems when they witness violence or are direct victims of abuse. Resulting physical, emotional and developmental problems can last a lifetime (Statistics Canada, 1997a, p. 2).

Among all forms of maltreatment, witnessing spousal violence appears to have the strongest influence on young people's subsequent risk behaviours, including substance abuse and criminal behaviour (Manion and Wilson, 1995, pp. 28–29). Family violence, school difficulties, impoverished communities and high rates of youth unemployment have been cited by the National Crime Prevention Council as underlying risk factors for delinquency (CCSD, 1997, p. 23). The most common form of family violence — including both physical violence and verbal abuse (e.g. teasing, name calling and isolation) — is between siblings (CCSD, 1997, pp. 42–43).

The values and norms of the broader society have a profound influence on the physical, mental, spiritual, social and economic health and well-being of children and adults alike. By extension, the services and policies that reflect norms and values related to issues such as culture and ethnicity, the place of women in society, and the importance placed on children and families, all have an impact on children's health (Health Canada, 1996a, pp. 15–16).

Conditions and Trends

Parenting and Family Functioning (or Love and Emotional Support)

A key requisite for healthy child development is attachment to an adult who consistently provides direction, understanding and support. According to the National Longitudinal Survey of Children and Youth (NLSCY), in 1994–95, most children aged 2 to 11 had fairly positive interactions with their parents and received consistent parenting (Ross, Scott and Kelly, 1996, p. 39).

***A** key requisite for healthy child development is attachment to an adult who consistently provides direction, understanding and support.*

In a study of 10- and 11-year-olds in step-families, the NLSCY found that while the majority of step-children reported moderate to good experiences, approximately 33% of children felt they lacked emotional support from their parents. Only 27% of children in intact families that comprise the birth parents felt this way (Cheal, 1996, p. 98). See **Exhibit 4.1**.

There are indications that many children and youth are looking to sources outside their family for help. For example, an average of 3,000 children and youth per day call the Kids Help Phone, a national 24-hour counselling service (CCSD, 1997, p. 10).

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4.1 **Selected residential parenting arrangements and negative perceptions of family life of children 10 to 11 years old, Canada, 1994–95**

	Lack of emotional support	Erratic punishment	Difficult family relationships
Biological[a] mother and biological father	26.8%	33.1%	28.1%
Biological mother and no father	30.2%	34.2%	60.7%
Biological mother and step-father	33.8%	49.9%	45.2%

a. Biological parents include adoptive parents.

Source: Adapted from D. Cheal (1996). "Stories About Step-families." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 98.

Family Structure

While the dominant family structure remains married couples with children, Canadian families are more diverse than ever before. The result is that children today face a complex world of new social relationships — custodial and non-custodial parents, step-parents, members of common-law relationships, full siblings, half siblings and step-siblings (CCSD, 1996, p. 14).

Most children live in families with married parents.

In 1994–95, most (84.2%) children lived in families with two parents (Ross, Scott and Kelly, 1996, p. 29). See **Exhibit 4.2**. While divorce rates have dropped since reaching an all-time high in 1987, current rates are significantly higher today than they were a generation ago. The number of divorces per 100,000 people increased from 54.8 in 1967 to 273.9 in 1991 (Richardson, 1996, p. 229); in 1994, the rate declined slightly to 269.7 (Statistics Canada, 1996a, p. 4). Legal frameworks for divorce have changed significantly in recent years, and statistics on family formation and dissolution were not necessarily reliable in the past when separations and common-law unions were underreported.

There are more common-law families.

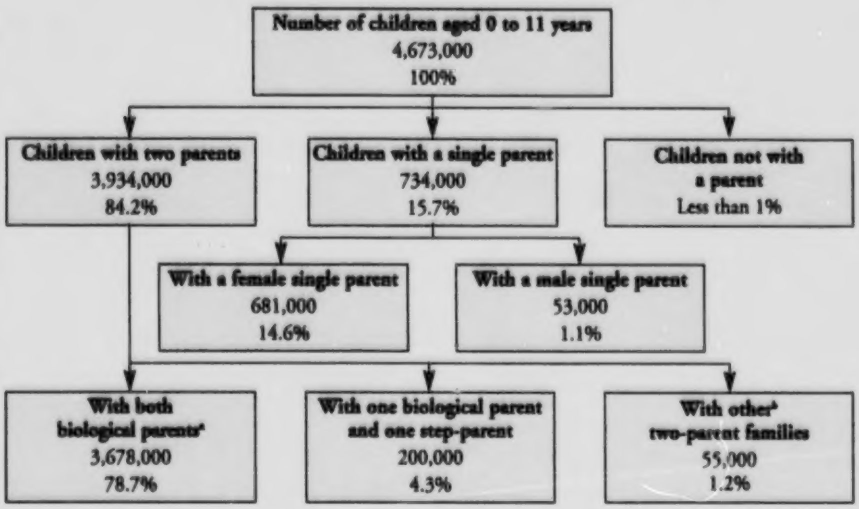
The percentage of families that include common-law spouses in Canada doubled between 1981 and 1995, from 6% to 12%. Roughly half of these families include children (CCSD, 1996, p. 13).

The NLSCY data suggest that common-law unions provide a less stable family environment for children than marriages. In 1994–95, 63% of 10-year-olds with parents living in a common-law union had seen their parents separate, compared with only 14% of children whose parents were married and had not previously lived in common (Statistics Canada, 1998a).

Kids with Teen Moms

[illegible]

4.2 Distribution of children aged 0 to 11 by family type, Canada, 1994–95


Number of children aged 0 to 11 years
4,673,000
100%
Children with two parents
3,934,000
84.2%
Children with a single parent
734,000
15.7%
Children not with a parent
Less than 1%
With a female single parent
681,000
14.6%
With a male single parent
53,000
1.1%
With both biological parents[a]
3,678,000
78.7%
With one biological parent and one step-parent
200,000
4.3%
With other[b] two-parent families
55,000
1.2%

a. Includes 182,000 children living with step-siblings.

b. Includes children with two adoptive parents, one biological and one adoptive parent, two foster parents, two step-parents, and one adoptive and one step-parent.

Source: Adapted from D.P. Ross, K. Scott and M.A. Kelly (1996). "Overview: Children in Canada in the 1990s." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 29.

The number of step-families and lone-parent families is increasing.

In 1994, approximately 9% of Canadian children under the age of 12 lived in a step-family, the majority of which were blended families, with both parents bringing children from a previous relationship into their current union (Statistics Canada, 1997b, p. 9).

Approximately 20% of all families with children were lone-parent families in 1996. The number of lone-parent families as a percentage of all families in Canada almost doubled between 1961 and 1991 (from 11% to 20%) (CCSD, 1996, p. 10). Eight out of 10 lone-parent families are headed by women (CCSD, 1997, p. 12).

Who Are Kids with Problems?

Results of the 1994–95 NLSCY show that most children with behavioural, academic or social problems are from dual-parent families. For example, almost three quarters (71.1%) of children with conduct disorders came from two-parent families, while 28.9% were from lone-mother families (Lipman, Offord and Dooley, 1996, p. 84). This split reflects family structure trends: most children live in dual-parent families.

4.1 **Selected residential parenting arrangements and negative perceptions of family life of children 10 to 11 years old, Canada, 1994–95**

	Lack of emotional support	Erratic punishment	Difficult family relationships
Biological[a] mother and biological father	26.8%	33.1%	28.1%
Biological mother and no father	30.2%	34.2%	60.7%
Biological mother and step-father	33.8%	49.9%	45.2%

a. Biological parents include adoptive parents.

Source: Adapted from D. Cheal (1996). "Stories About Step-families." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 98.

Family Structure

While the dominant family structure remains married couples with children, Canadian families are more diverse than ever before. The result is that children today face a complex world of new social relationships — custodial and non-custodial parents, step-parents, members of common-law relationships, full siblings, half siblings and step-siblings (CCSD, 1996, p. 14).

Most children live in families with married parents.

In 1994–95, most (84.2%) children lived in families with two parents (Ross, Scott and Kelly, 1996, p. 29). See **Exhibit 4.2**. While divorce rates have dropped since reaching an all-time high in 1987, current rates are significantly higher today than they were a generation ago. The number of divorces per 100,000 people increased from 54.8 in 1967 to 273.9 in 1991 (Richardson, 1996, p. 229); in 1994, the rate declined slightly to 269.7 (Statistics Canada, 1996a, p. 4). Legal frameworks for divorce have changed significantly in recent years, and statistics on family formation and dissolution were not necessarily reliable in the past when separations and common-law unions were underreported.

There are more common-law families.

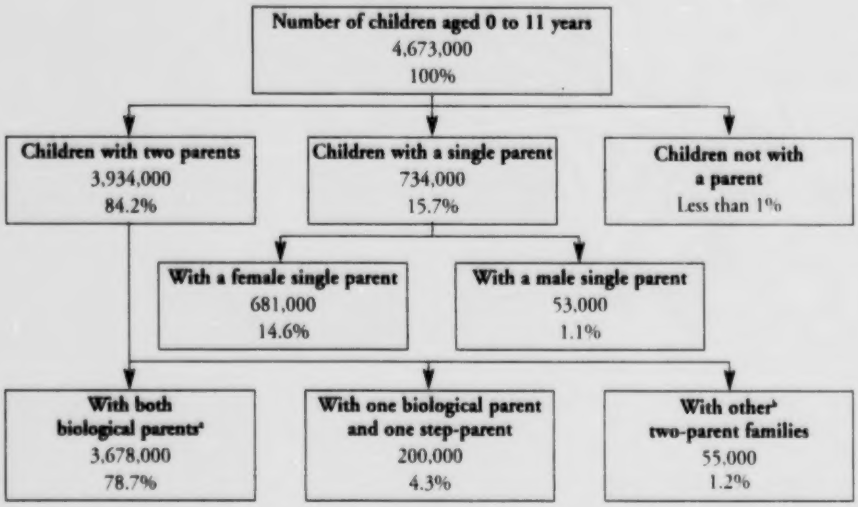
The percentage of families that include common-law spouses in Canada doubled between 1981 and 1995, from 6% to 12%. Roughly half of these families include children (CCSD, 1996, p. 13).

The NLSCY data suggest that common-law unions provide a less stable family environment for children than marriages. In 1994–95, 63% of 10-year-olds with parents living in a common-law union had seen their parents separate, compared with only 14% of children whose parents were married and had not previously lived in common (Statistics Canada, 1998a).

Kids with Teen Moms

Contrary to popular perception, a relatively small proportion of teens in Canada are having babies. In 1994, less than 1% of all Canadian children lived with a teen mother (CCSD, 1997, p. 13).

4.2 **Distribution of children aged 0 to 11 by family type, Canada, 1994–95**


Number of children aged 0 to 11 years
4,673,000
100%
Children with two parents
3,934,000
84.2%
Children with a single parent
734,000
15.7%
Children not with a parent
Less than 1%
With a female single parent
681,000
14.6%
With a male single parent
53,000
1.1%
With both biological parents[a]
3,678,000
78.7%
With one biological parent and one step-parent
200,000
4.3%
With other[b] two-parent families
55,000
1.2%

a. Includes 182,000 children living with step-siblings.

b. Includes children with two adoptive parents, one biological and one adoptive parent, two foster parents, two step-parents, and one adoptive and one step-parent.

Source: Adapted from D.P. Ross, K. Scott and M.A. Kelly (1996). "Overview: Children in Canada in the 1990s." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 29.

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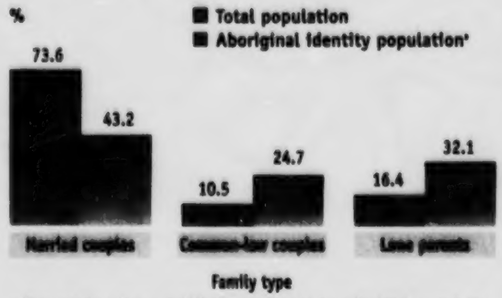
The proportion of lone-parent families is even higher among Aboriginal people. In 1996, 32% of Aboriginal children under the age of 15 living in Census families[1] were lone-parent families — twice the rate of the general population. See **Exhibit 4.3**. In urban areas, the rate was even higher at 46% (Statistics Canada, 1998b).

4.3 **Proportion of children aged 0 to 14 in Census families, by family structure, Canada, 1996**



a. The population who reported identifying with at least one Aboriginal group: North American Indian, Métis or Inuit.

Source: Adapted from Statistics Canada (1998). *The Daily*, Catalogue No. 11-001, January 13, 1998.

Most people have family responsibilities.

A 1992 survey of more than 5,000 employees in eight Canadian workplaces revealed that 31% of respondents had caregiving responsibilities for dependents under 19 years of age, 20% had only elder care responsibilities, and 26% had responsibility for both child care and elder care. Fewer than one in four employees (23%) had neither child care nor elder care responsibilities (Work and Eldercare Research Group of CARNET, 1993, pp. 3–5).

Families are smaller.

The majority (81%) of all families in Canada have either one or two children (CICH, 1994, p. 5). Smaller families mean fewer relatives (Vanier Institute of the Family, 1994, p. 10) and fewer sources of social support for members. Since Canada is a country of mobility and immigration, extended support networks are often drawn from outside the family.

Family Violence

Child welfare is an area of provincial jurisdiction, and there are significant variations in the types of data collected and the manner in which they are reported. For these reasons, national child abuse data are currently not available. However, development of a national database — the Canadian Incidence of Reported Child Abuse and Neglect — is under way. We do know that, on a national scale, children are frequently the victims of family violence. Girls are most often the victims of sexual assault.

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[1] "Census family" is defined by Statistics Canada as a now-married couple (with or without never-married sons or daughters of either or both spouses), a couple living common-law (again with or without never-married sons or daughters of either or both spouses), or a lone parent of any marital status, with at least one never-married son or daughter living in the same dwelling. Families of now-married and common-law couples together constitute husband-wife families.

Reported violence against children is increasing.

Maltreatment assessments, complaints, and the number of children in need of protection appear to be increasing in most Canadian provinces. Moreover, it is generally accepted that substantial numbers of cases still go unreported in many jurisdictions (Wachtel, 1989, pp. 7–8). At the same time, public education programs across the country aimed at sensitizing the public to the full impact of violence against children are resulting in increases in reports of violence.

A survey of selected police agencies in 1996 showed that children under 18 years of age were the victims in 22% of all reported violent crimes. A much higher proportion of these assaults were sexual (60%) than physical (18%) (Statistics Canada, 1997c).

Family members are accused in one fourth of all assault cases against children under age 18. Very young children (under age 3) are more likely to be assaulted by family members than non-family members — almost 70% of victims under the age of 3 were assaulted by members of their own family (Statistics Canada, 1997c).

Children of Violence

Children who witness their mother being abused by their father or other male partner display higher rates of emotional problems, low self-esteem, withdrawal and depression. They also tend to have lower levels of school achievement (National Clearinghouse on Family Violence, 1996, p. 3).

Girls are most at risk from sexual abuse.

It has been estimated that 25% of girls and 10% of boys will be sexually abused before the age of 16 (Finkel, 1987, p. 245). Results of a 1998 study by Statistics Canada showed the following:

- Overall, girls are the primary victims of sexual assaults by family members, and represent four in every five victims of sexual assault by a family member (79%). Girls were also the victims in more than half of physical assaults (56%) (Statistics Canada, 1998c, p. 22).

- Girls and boys appear to be vulnerable to abuse by family members at different stages of their development. Higher numbers of girls were sexually assaulted by a family member at 12 to 15 years of age. In contrast, boys were more likely to be sexually assaulted between the ages of 4 and 8 (Statistics Canada, 1998c, p. 3).

- Of all reported child abuse cases committed by family members, 20% were physical assault. Parents were the most likely perpetrators in 64% of these cases; 73% were committed by fathers and 27% by mothers. Thirty-two percent of all reported sexual abuse cases were committed by a family member. In 43% of these sexual assault cases, one of the parents was the most likely perpetrator. In almost all of these cases (98%), the father was responsible; responsibility for the other 2% rested with the mother. The remaining 57% of sexual assault cases involved a sibling (28%), an extended family member (27%) or a spouse (1%). (Statistics Canada, 1998c, p. 22).

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Wife assault and child abuse often co-exist.

One in three Canadian women has been assaulted by her partner, with many of these assaults being witnessed by children (Statistics Canada, 1994, pp. 4, 14). There is a 30% to 40% overlap between children who witness wife assault and children who experience direct physical or sexual abuse themselves (Jaffe, Wolfe and Wilson, 1990, pp. 21–22).

Violence is a problem in Aboriginal families.

There are currently no national data on the incidence of family violence in Aboriginal communities. However, existing research indicates that abuse pervades these communities. For example:

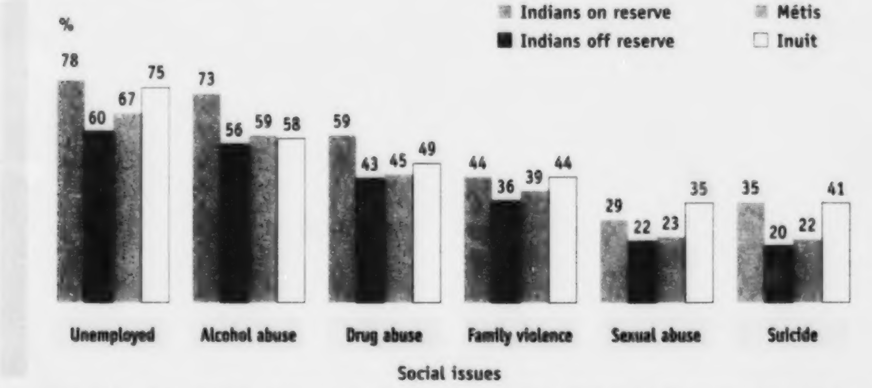
- 39% of Aboriginal adults say that family violence is a problem in their community, and a large proportion state that unemployment, alcohol, sexual abuse and suicide are significant problems (Statistics Canada, 1993, p. 114). See **Exhibit 4.4**.
- In some northern Aboriginal communities, it is believed that between 75% and 90% of women are battered. One study found that 40% of children in these communities had been physically abused by a family member (Health Canada, 1996b).

Costs of Violence

There are many social costs associated with family violence: children and adolescents with histories of maltreatment are more likely to engage in risky behaviours and to come into contact with the justice system. Adolescents who have experienced neglect, physical, emotional or sexual abuse, or exposure to interparental violence are more likely to run away from home and to use tobacco and other drugs. These adolescents are often less able to adjust to life changes and are more likely to contemplate suicide, suffer from mental illness and engage in criminal behaviour (Manion and Wilson, 1995, pp. 7, 28).

It is estimated that the public spends US$169,029 on each child sexual abuse offender. The expenditure for each victim is estimated at US$14,304 (Prentky and Burgess, 1990, pp. 106–120).

4.4 Proportion of Aboriginal people, aged 15+, identifying selected social issues as a problem, Canada, 1991



Source: Statistics Canada (1993). *Language, Tradition, Health, Lifestyle and Social Issues: 1991 Aboriginal Peoples Survey*. Catalogue No. 89-533. Ottawa: Statistics Canada.

School and Community Networks

As seen earlier, the relationships that children and youth establish and the experiences they have in their school and community are critically important to their development. A child's secondary support network is the local community, which offers developmental opportunities through informal play, organized recreation, schooling and cultural experiences.

A supportive school environment is important.

Schools can provide a variety of positive influences on children. They can promote self-esteem, provide opportunities to experience success, and enable students to develop both social and problem-solving skills (Rutter, 1987). A supportive school environment can also act as a buffer against potentially harmful conditions in the home and in other non-school environments (Dubois et al., 1992).

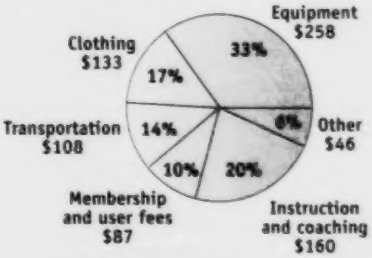
"Successful" schools are characterized by a number of common elements related to social support: higher levels of parental involvement; higher teacher expectations of student achievement; relevant curriculum content with emphasis on specific literacy skills; collaboration among administrators, teachers and students; a positive school climate where students feel safe and have a sense of belonging; integration of students from differing social class backgrounds and ability levels; and an emphasis on prevention over remediation (Willms, 1999).

According to the NLSCY, most children are involved in sports outside of school; however, only 30% attended music, dance or art lessons or participated in Brownies or Scouts (CCSD, 1997, p. 47).

Cost is a factor.

While most Canadian cities provide recreational programs for children and youth, almost all charge user fees (CCSD, 1997, p. 32). According to the Canadian Council on Social Development, nearly half of poor families say a barrier to participation is the cost of physical recreation (CCSD, 1997, p. 9). Almost 70% of 4- to 11-year-olds from families earning less than $20,000 a year did not participate in organized sports such as hockey or gymnastics; however, approximately two thirds of children from households with a family income of $40,000 or more did participate (NLSCY data cited in CCSD, 1997, p. 47). See **Exhibit 4.5**.

4.5 **Average yearly expenditures on physical activities for children aged 0 to 18, Canada, 1995**



Source: Canadian Fitness and Lifestyle Research Institute (1996). "The Economics of Participation." *Progress in Prevention*, Bulletin No. 10, p. 2.

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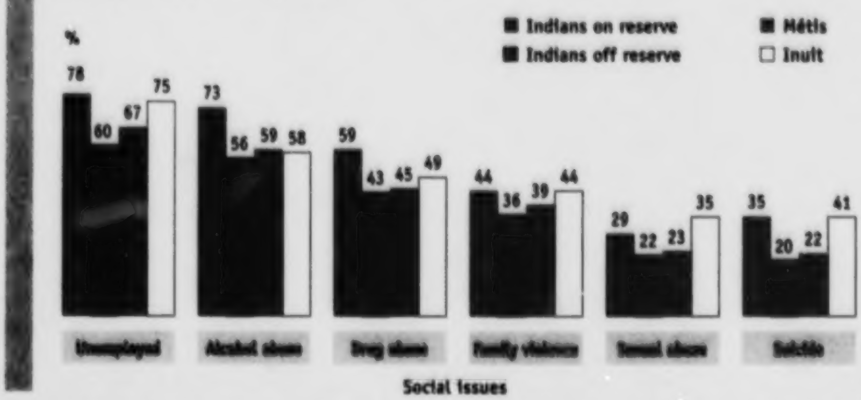

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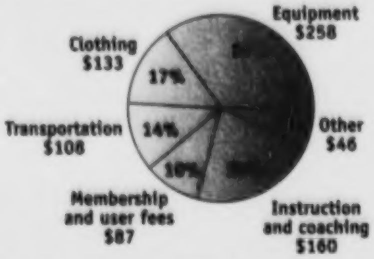

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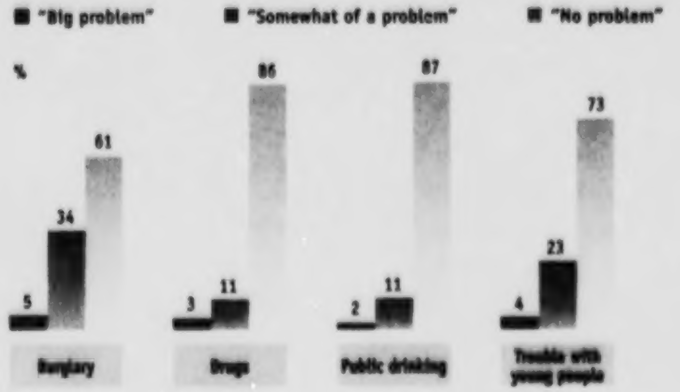
Community Security

The majority of Canadian children live in neighbourhoods that their parents believe to be safe; however, one in four children lives in an area that their parents believe is unsafe after dark (CCSD, 1997, p. 8). See **Exhibit 4.6.**

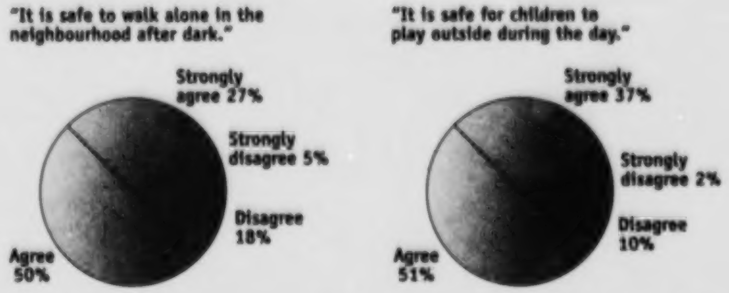
Children and youth themselves are fearful — a 1996 study of 15-year-olds found that one half of the boys and one quarter of the girls felt that bullying was a problem (CCSD, 1997, p. 10).

4.6 Proportion of children aged 0 to 11 whose parents report selected safety issues in their neighbourhood, Canada, 1994–95

A. Extent to which selected issues are reported by parents as problematic



B. Proportion of parents who agree/disagree with selected statements about neighbourhood safety



Source: Prepared by the Centre for Internatinal Statistics at the Canadian Council on Social Development using Statistics Canada's National Longitudinal Survey of Children and Youth, 1994 and 1995. In Canadian Council on Social Development (1997). *The Progress of Canada's Children — 1997*. Ottawa: CCSD, p. 23.

Child and Youth Crime

While the overall rate of *Criminal Code* offences among youth declined between 1991 and 1996, there has been an increase in the proportion of young offenders charged with violent crime. For all offences, the 1996 youth rate was down 4% from that of 1991. Of these 118,000 youth, 56% were charged with property offences and approximately 20% were violent crimes. Over the past decade, the rate of violent crimes has more than doubled from 9% in 1986. This may seem alarming, but the rising rate is due to the increased proportion of common assaults, the least serious form of assault (Statistics Canada, 1997d, p. 7).

In 1996–97, 12- and 13-year-olds accounted for 12% of cases in youth court, while 16- and 17-year-olds accounted for 49% of cases (Statistics Canada, 1998d). Youth court statistics (Statistics Canada, 1998d) show that:

- The overall caseload decreased 8.5% between 1992–93 and 1996–97.
- Property crime (which accounts for about one half of all youth court cases) dropped 20.6% over the same period, while violent crime increased very slightly and drug cases doubled.
- Since 1992–93, about one half of all cases heard involved minor assaults. Murder/manslaughter cases accounted for less than 1% of youth court cases.

A 1994 public opinion survey showed that most (four out of five) Canadians felt that Canada's justice system was too lenient (Angus Reid Group Inc., 1994, p. 18).

Street Youth

Although the exact numbers of street youth in Canada are not known, estimates are high. For example, between 3,000 and 5,000 youth lived on the streets in Toronto in 1990. The same study of Toronto's street youth revealed that about two thirds had been physically abused and one fifth had been sexually abused by someone living with them. Over half (58%) of those surveyed reported that the abuse contributed to their decision to live on the street (Smart et al., 1992, p. 24).

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Social Environment and Other Determinants

Income

Divorce affects children emotionally and economically. Children of divorced parents are more likely to live in poverty, be exposed to ongoing inter-parental conflict, and see less of their non-residential parent. At the same time, the mothers of these children experience increased social support (Mandell and Duffy, 1995, p. 227).

Poverty is a significant risk factor for exposure to family or neighbourhood violence and the development of aggressive behaviour patterns. In 1995, the National Council of Welfare reported that about 2.6 million Canadian households were living in poverty (CCSD, 1997, p. 29).

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Child abuse and neglect can be attributed to a number of factors — one of which is poverty. "Family factors include substance abuse, a history of family violence, high levels of family discord and inadequate parenting in the previous generation. Social and economic factors include inadequate monetary support, unemployment or underemployment and a lack of social services" (Advisory Committee on Children's Services, 1990, p. 22).

Education

According to the NLSCY, positive parenting is associated with normal and advanced scores on school readiness tests (Ross, Scott and Kelly, 1996, p. 42).

Genetic and Biological Factors

Biological and genetic risk factors can limit the kinds of environment in which children are able to participate. For example, some schools and recreational facilities may not be able to accommodate children with disabilities. Children with this type of risk factor may have their health further impaired by being in an inappropriate environment.

Role of the Media

Either explicitly or implicitly, the media convey socializing messages that influence children's values, attitudes and social behaviour patterns.

Accessibility to new technologies is increasing the potential for exposure to violent media messages. Violence is very much a part of the entertainment culture — including television, video, films, video games and comic books (CPHA, 1994, p. 12).

Cable TV subscriptions increased from 47% in 1977 to nearly 74% in 1994 (Frank, 1995, p. 5). In 1996, nearly one third (31.6%) of households owned a personal computer — three times as many as in 1986 (Statistics Canada, 1996b). Television watching is cited as the most common extra-curricular activity of children (CCSD, 1997, p. 10).

Each year, the average Canadian child is exposed to 12,000 acts of violence and more than 1,000 rapes on television. By the time that same child graduates high school, he or she will have been exposed to 18,000 television murders and 800 television suicides (Chance, Avard and Thurm, 1995, p. 2).

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According to the NLSCY, positive parenting is associated with normal and advanced scores on school readiness tests (Ross, Scott and Kelly, 1996, p. 42).

Genetic and Biological Factors

Biological and genetic risk factors can limit the kinds of environment in which children are able to participate. For example, some schools and recreational facilities may not be able to accommodate children with disabilities. Children with this type of risk factor may have their health further impaired by being in an inappropriate environment.

Role of the Media

Either explicitly or implicitly, the media convey socializing messages that influence children's values, attitudes and social behaviour patterns.

Accessibility to new technologies is increasing the potential for exposure to violent media messages. Violence is very much a part of the entertainment culture — including television, video, films, video games and comic books (CPHA, 1994, p. 12).

Cable TV subscriptions increased from 47% in 1977 to nearly 74% in 1994 (Frank, 1995, p. 5). In 1996, nearly one third (31.6%) of households owned a personal computer — three times as many as in 1986 (Statistics Canada, 1998). Television watching is cited as the most common extra-curricular activity of children (CICH, 1997, p. 10).

Each year, the average Canadian child is exposed to 12,000 acts of violence and more than 1,000 rapes on television. By the time that same child graduates high school, he or she will have been exposed to 15,000 television murders and 800 television suicides (Chasse, Arend and Worm, 1996, p. 4).

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Chapter

5

Natural and Built Environments

Overview

The physical environment — both natural and that modified or built by humans — plays a crucial role in the development of a healthy child. It includes the housing in which children live, the air they breathe, the water they drink, the food they eat, the consumer products they use, and the parks and communities in which they play. Children are exposed to different hazards, within both natural and built environments.

These hazards can be divided into four areas.

Hazards caused by the physical environment: These hazards cause unintentional injuries of many types, including traffic-related injuries, drowning, animal attacks, suffocation, burns, falls, and poisoning. They are the leading cause of death and a major cause of hospitalization for children. They can also cause long-term disabilities.

Biological hazards: Infections caused by pathogenic micro-organisms are termed biological hazards. They are spread through direct contact, food, air, soil and water, and can impair child health. The consequences of these infections range from mild gastro-intestinal discomfort to death.

Chemical hazards: Chemicals released into the environment may be present in air, water, soil and food. In some situations, these chemicals may present a risk to children.

Global environmental degradation: Children face serious threats to their health from the effects of global warming and the thinning of the ozone layer.

There is a definite interconnection between the natural and built environments. For instance, the quality of air — an important component of the natural environment — is strongly influenced by human activities, such as the operation of vehicles and industrial plants. The quality of drinking water is influenced by the type of water used and the purification processes. The quality of food is affected by agricultural practices such as the use of pesticides, fertilizers, supplements and additives and the methods of storage and preparation.

Indoor air, however, is even more affected by human activity. Its quality is not only influenced by outdoor air pollutants, but also by indoor activities such as cooking and by the quality of the housing (highly energy-efficient housing with insufficient ventilation will increase indoor air pollutants). In addition, the habits of residents, such as smoking, contaminate indoor air. Environmental tobacco smoke (ETS) is a persistent indoor air contaminant. Damp houses and classrooms are breeding grounds for moulds, which are strong allergens.

Relationship to Healthy Child Development

Children are highly vulnerable to their physical environment. They are more sensitive to toxicants and hazardous conditions than their adult counterparts. This enhanced vulnerability is caused by their behaviour, their physiology and their early stage of development (Chance and Harmsen, 1998).

Behaviour

Several behavioural characteristics of children increase their exposure to physical, biological and chemical hazards in both the natural and built environments.

Children's behaviour and injury

Infancy is a time of increased mobility and discovery. However, this puts children at increased risk of falling, suffocating, and accidental poisoning. Preschool children have an increased vulnerability because of their curiosity, their growing sense of independence, and because they do not have the reasoning skills to understand danger. They are vulnerable to a wide range of injuries, particularly from falls, ingesting poison, and water- and traffic-related incidents. School-age children experience fewer injury deaths and injury hospitalizations compared with toddlers; however, these older children are involved in other injury incidents, such as those related to bicycles and playgrounds. As teenagers strive to achieve more and more independence, they experiment and take risks, which increases their chances of sustaining severe injuries (Rivara, 1994).

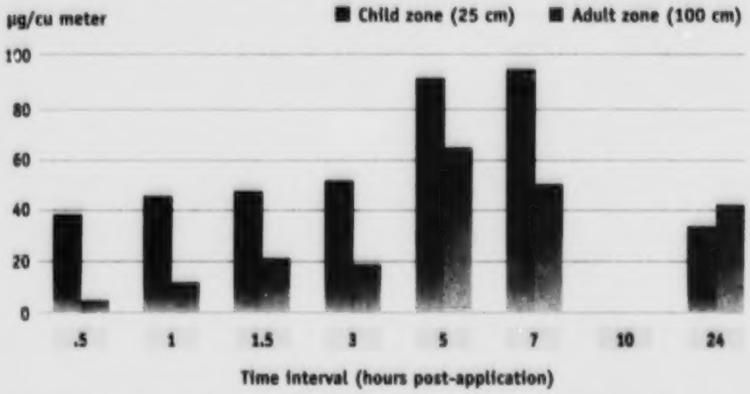
Children's behaviour and exposure to chemical and biological hazards

Children and infants in particular eat up to three times more food and drink up to four times more fluids per kilogram of body weight than older children or adults. The diets of children tend to be less varied; for example, children have unique food preferences, eat more apples, and drink more juice (National Research Council, 1993, pp. 167–192). This concentrated consumption of particular foods may mean that children have a higher exposure to chemical hazards, such as pesticide residues, than adults. In addition, young infants are likely to ingest toxic or infectious agents in dust or soil because they play on the ground, and because of their hand-to-mouth activity and teething behaviour (Calabrese, Stanek and Gilbert, 1991).

Infants and young children spend, on average, 85% to 90% of their time indoors (Samet et al., 1993). Indoor air contaminants tend to concentrate at the floor level; because children are physically smaller and spend much time on the floor, they may be exposed to higher concentrations of these contaminants than adults. Ventilation clears the air at adult heights, but children playing close to the floor won't benefit from this (Fenske, 1992). See **Exhibit 5.1** and **Exhibit 5.2.** Children often sit near or on adults and are therefore closer to the source of second-hand smoke.

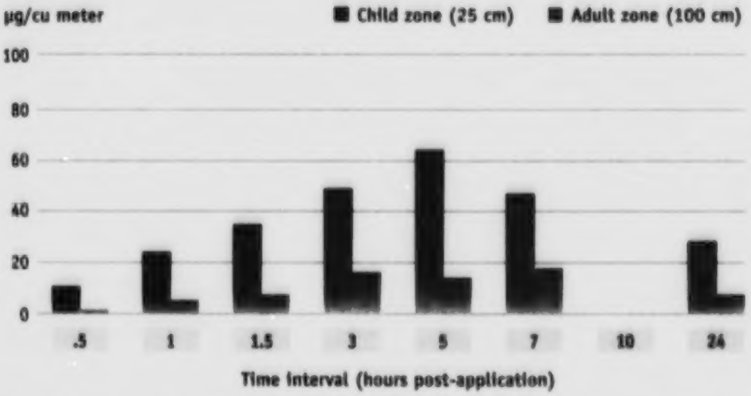
Also, children are at greater risk of exposure to air pollutants (both indoors and outdoors) because they spend more time engaged in vigorous activities compared with adults. They breathe more rapidly and inhale more pollutants per kilogram of body weight. Children engaging in vigorous activities at swimming and skating facilities may be exposed to higher concentrations of chlorinated compounds in swimming pools and carbon monoxide (CO) and nitrous dioxide (NO_2) in ice arenas (Aggazzotti et al., 1993).

5.1 Chlorpyrifos air concentrations in the breathing zone of a crawling child and sitting adult in a non-ventilated room, Canada, 1987



Source: R.A. Fenske (1992). "Differences in Exposure Potential for Adults and Children Following Residential Insecticide Application." In P.S. Guzelion et al. (eds.). *Similarities and Differences Between Children and Adults*, p. 217. Used with permission. ©1992 International Life Sciences Institute, Washington, D.C., U.S.A.

5.2 Chlorpyrifos air concentrations in the breathing zone of a crawling child and sitting adult in a ventilated room, Canada, 1987



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Physiology and Chemical Hazards

It is now known that the fetus is exposed to toxicants, which pass through the placenta, either as a result of maternal behaviour during pregnancy (such as smoking, or alcohol and drug use) or because toxicants such as persistent organic pollutants or heavy metals are already present in the bodies of pregnant women. Although the known benefits of breastfeeding outweigh the uncertain risks associated with contaminants in human milk, the presence of elevated levels of some persistent organic chlorine contaminants such as polychlorinated biphenyls, dioxins and furans in the milk of Inuit women has raised concern. Since compounds such as lead or organochlorine (OCs) can accumulate in body tissues, exposure prior to pregnancy contributes to the overall amount stored in the mother's body and also results in exposure to the developing fetus during pregnancy (DIAND, 1997, pp. 411–412).

Small children can absorb more toxicants from ingested food, water, air, dust or soil than adults (Plunkett, Turnbull and Rodricks, 1992). For instance, children are able to absorb a greater percentage of ingested lead because their system is up to five times more efficient. In addition, an immature blood brain barrier in infants is less selective in its permeability and hence will pass lead more easily (Rodier, 1995).

A child's ability to metabolize, detoxify and eliminate toxicants can be different from an adult's. For example, an infant may be more susceptible to toxic chemicals because the detoxification enzymes in the liver and the excretion capabilities of the kidney are immature, especially in the first year (Chance and Harmsen, 1998).

Development and Chemical Hazards

Growing tissue is susceptible to interference; consequently, developing organs are more prone to functional damage. Organ development begins in the fetal stage and continues into adolescence. The growth of the organs is not linear, occurring instead in spurts. If toxic exposure occurs during these critical growth stages, the system can sustain permanent damage.

The brain is the most complex organ, needs the longest time to develop, and hence is potentially the most vulnerable to environmental influences. At all phases of growth, the brain is vulnerable to environmental influence. The brain's developmental phases are particularly crucial because of the finite nature of neural tissue growth. Critical growth periods missed or critical cell systems lost will not be replaced, unlike in some other organs such as liver or muscles, which can regenerate easily (Rodier, 1995). This disturbed neural tissue growth may cause neurological abnormalities later on in life.

Even low exposure levels of toxicants can affect organ development (Rice, 1998). The so-called hormonal or endocrine disruptors can interfere with growth at concentrations which are up to 10,000 times lower than those needed for acute toxicological effects (Colborn, Dumanoski and Peterson Myers, 1996, pp. 110–121). As yet, there is no hard evidence that endocrine disruptors have caused adverse health effects in people at levels typically found in our environment (Health Canada, 1997a, pp. 126–127).

Conditions and Trends: Natural Environment

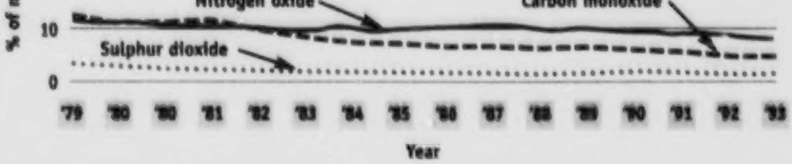
Ambient Air Quality

The major sources of air pollution are both natural and human-made. Air pollutants arise from the combustion of fossil fuels for energy generation in industrial processes, transportation and heating. Air pollutants can be transported over long distances. For example, a reddish-brown haze present in the Arctic originated in Europe and Asia (Environment Canada, 1996, p. 10-13). In the Windsor–Quebec corridor, ground level ozone originates in the United States, while Ontario's SO_2 emissions affect the air quality in the eastern United States and the Atlantic provinces (Environment Canada, 1996, p. 10-11). Other compounds, such as lead, as well as pesticides, dioxins or PCBs are transported through the air over long distances. For instance, pesticides used in Latin America, Mexico and the United States have contributed substantially to the pesticide levels in the Great Lakes and the Arctic (Environment Canada, 1996, pp. 9-14–9-20).

Because children breathe faster than adults, the amount of inhaled air relative to a child's size and weight is substantially higher (Plunkett, Turnbull and Rodricks, 1992). Children's lungs are vulnerable; during infancy and up to age 8, the number of alveoli is still increasing and growing. Effects of air contaminants on children range from coughing, wheezing and asthma to diminished lung function. These effects, in turn, result in increased hospitalizations.

Outdoor airborne contaminants that impact on children's health are sulphur dioxide, small airborne particles, ground-level ozone and lead. See **Exhibit 5.3**.

5.3 **Trends in common air contaminants, Canada, 1979 to 1993**



Note: Maximun acceptable levels are 82 parts per billion (ppb) for ozone (1h), 344 ppb for sulphur dioxide (1h), 213 ppb for nitrogen dioxide (1h), 13 parts per million (ppm) for carbon monoxide (8h), and 120 $\mu g/m^3$ for total suspended particles (24h). Data plotted are average annual levels at all monitoring stations.

Source: Government of Canada (1996). *The State of Canada's Environment — 1996*. Ottawa: available from Environment Canada, p. 10-10. Reproduced with the permission of the Minister of Public Works and Government Services, 1998.

Sulphur dioxide

SO_2 is a highly water-soluble, irritating gas that originates from the burning of sulphur and sulphur-containing coal, gas and oil. Maximal SO_2 levels occur in winter. About 73% of the SO_2 responsible for air pollution comes from industry, specifically the metal ore industry; 23% results from the combustion of fuel from power generators, while 4% comes from heavy vehicles that burn diesel fuel. Levels of SO_2 have decreased over the years (Environment Canada, 1996, p. 10-10).

Increased levels of SO_2 affect children's health and cause acute irritation of the upper respiratory tract (i.e. the nose and throat), as well as the eyes. At higher concentrations, SO_2 may cause bronchoconstriction and ultimately a decline in lung function. Children with asthma are more sensitive to SO_2 than non-asthmatic children. It is estimated that 1% of the hospitalizations of children in Ontario result from high levels of SO_2 in ambient air (Burnett et al., 1994).

Airborne particles

Airborne particles are small particles that stay suspended in air. They vary in size and, in general, the smaller the size of the particle, the greater the health risk. Airborne particles are produced by a variety of sources both natural and synthetic. In Canada in 1992, 65% of the total emission of particles was released into the air by mining, coal, wood, and pulp and paper industries, while 22% was derived from fuel combustion, either from power generation or from residential heat production, such as wood burning. Transportation accounted for 10% of the small particle emissions. Naturally occurring events such as soil erosion, forest fires and dust from windstorms also contribute to airborne particles. Over the last 10 years, industrial particulate emissions have declined, but emissions from residential wood burning have increased (Environment Canada, 1996, pp. 10-12–10-13).

Particles smaller than 10 µm (called particulates) are not filtered by the nose and can reach the bronchial area and be deposited in the lungs. They can damage the lungs and affect the health of children. Increases in airborne particulate levels have been associated with an increase in children's coughing, hospitalizations, and impaired lung function in both healthy and asthmatic children (Dockery and Pope, 1994; Koren, 1995). Children with asthma are more sensitive to particulates than non-asthmatic children. The mechanisms by which inhaled particles injure the lung are diverse, but inflammation of the lung plays an important role (Koenig, Covert and Pierson, 1989).

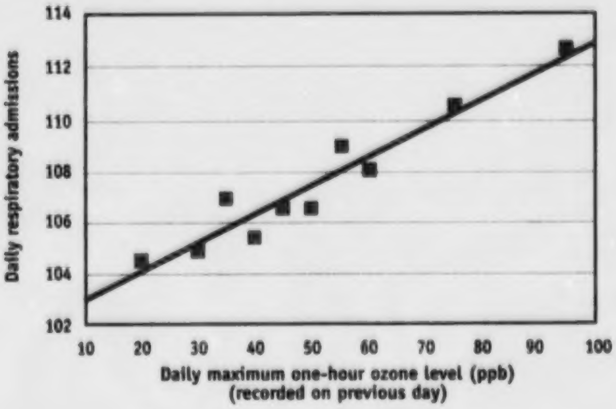
Ground-level ozone

Ground-level ozone is formed when sunlight and warm temperatures interact with oxides of nitrogen (NO_X) and volatile organic compounds (VOCs). Ground-level ozone is highest during daylight in the summer and is a major constituent of summer smog. In 1992, high annual averages of ground-level ozone were found in the Windsor–Quebec corridor, the Lower Fraser Valley and the southern Maritimes (Environment Canada, 1996, p. 10-12).

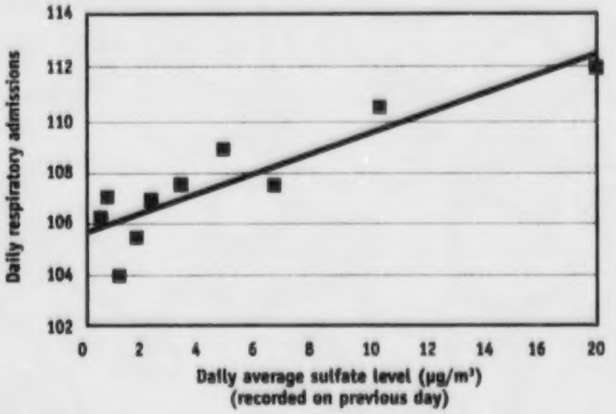
Ground-level ozone poses a unique problem for children because ozone is formed on sunny days, when children are more likely to be active and playing outside. Ground-level ozone affects children with asthma as well as children with no known pulmonary diseases. In Ontario during the summers from 1983 to 1988, it is estimated that about 15% of total hospital admissions of infants were attributable to the effect of ozone (Burnett et al., 1994). See **Exhibit 5.4**. This effect did not show a threshold, which could indicate that no safe level of ozone exists. In addition, ozone in young children may have an impact on alveoli surfaces of young children, which could affect future lung development (Richards and Brooks, 1995). Several studies have reported a decline in lung function of children after exposure to ozone (Spektor et al., 1988).

5.4 Hospital admissions for respiratory conditions — relationship to selected air quality factors, Ontario, 1983 to 1988

A. Relationship between daily respiratory admissions and daily maximum one-hour ozone levels (ppb) on the previous day, Ontario hospitals, 1983 to 1988



B. Relationship between daily respiratory admissions and daily average sulphate levels (µg/m³) on the previous day, Ontario hospitals, 1983 to 1988



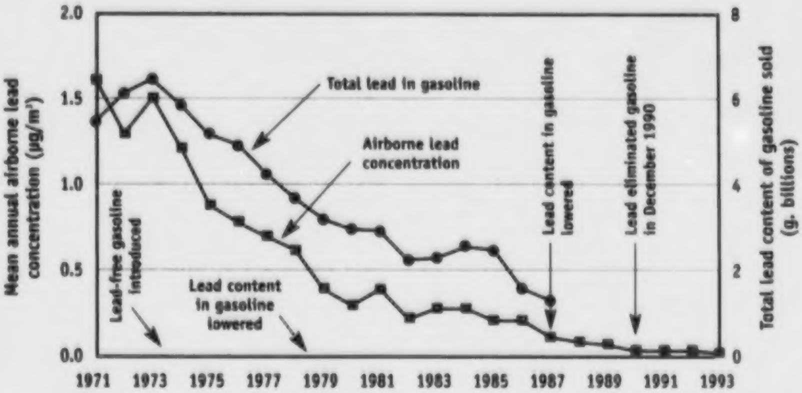
Source: R.T. Burnett et al. (1994). "Effects of low ambient levels of ozone and sulphates on the frequency of respiratory admissions to Ontario hospitals." *Environmental Research*, Vol. 65: 172–94.

Atmospheric lead

Atmospheric lead is derived mainly from vehicles burning leaded gasoline, with minor contributions from smelters and battery plants. Since the elimination of leaded gasoline in 1990, exposure to lead through ambient air is less of a concern. In Canada, levels of atmospheric lead have declined 95% since unleaded gasoline became available (Environment Canada, 1996, p. 13-11). See **Exhibit 5.5**. Over the last 25 years, the mining industry has also reduced its lead emissions (Environment Canada, 1996, p. 11-64).

The developing brain and nervous system of the fetus and young child are particularly vulnerable to lead. Adverse effects include IQ deficiencies, reading and learning disabilities, hyperactivity, and hearing problems. Even lead blood levels as low as 10µg/100 ml are associated with adverse effects; no obvious threshold for lead seems to exist (Needleman and Gatsonis, 1990).

5.5 **Total lead content of gasoline sold in Ontario and mean annual airborne lead concentrations in Toronto, 1971 to 1993**



Source: Government of Canada (1996). *The State of Canada's Environment — 1996*. Ottawa: available from Environment Canada, p. 13-11. Reproduced with the permission of the Minister of Public Works and Government Services, 1998.

Water and Food Quality

Quality food and drinking water are essential for the growth and health of children. In Canada, the quality of food and water in general is very good; however, biological and chemical contamination of these necessities does occur, with possible acute and long-term health effects (Health Canada, 1997a, pp. 84–85).

Some pollutants found in the water can bioaccumulate in the food chain. Substances such as persistent chlorinated compounds (PCCs) and metals such as mercury are in water at low concentrations. However, these compounds can accumulate in the food chain at incredibly high levels — 10,000 times higher in fish than in water, and in even higher concentrations in mammals and birds (Colborn, Dumanoski and Peterson Myers, 1996, pp. 87–109).

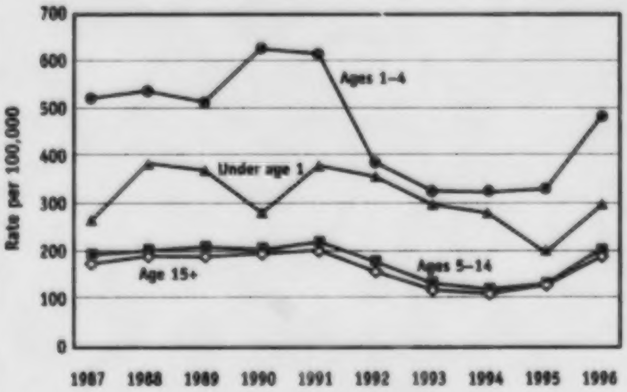
Because children eat and drink three to four times more food and fluids than adults per kilogram of body weight and eat a less varied diet, they experience higher doses of contaminants than adults per kilogram of body weight (National Research Council, 1993, pp. 172–192).

However, the Government of Canada, through Health Canada, Agriculture and Agri-Foods Canada, Fisheries and Oceans Canada and Environment Canada, has programs in place aimed at safeguarding Canada's food supply for Canadians.

Biological contamination

Both food and water are occasionally contaminated by biological agents including bacteria, viruses and protozoa. Children are more vulnerable than adults to biological contaminants. Recent data from British Columbia show that preschoolers aged 1 to 4 have the highest rates of intestinal infections. (B.C. Provincial Health Officer, 1998, pp. 65–78). See **Exhibit 5.6**. *Giardia* is the most commonly implicated protozoan parasite in outbreaks of water-borne disease. *Cryptosporidium*, also a protozoan parasite and even more chlorine-resistant than *Giardia*, was implicated in recent outbreaks. Half of the people affected by *Cryptosporidium* were children under 14 years of age (B.C. Provincial Health Officer, 1998). Food-borne illnesses result primarily from improper food handling, preparation and storage. *Salmonella* and *Campylobacter* bacteria are associated with these outbreaks (Health Canada, 1997a, pp. 110–112).

5.6 Reportable intestinal disease rates, by selected age groups, British Columbia, 1987 to 1996



Source: B.C. Provincial Health Officer (1998). *The Health and Well-being of British Columbia's Children: Provincial Health Officer's Annual Report 1997*: Victoria: B.C. Ministry of Health, p. 73.

Chemical contamination

The most common pathways of exposure to contaminants include breathing indoor air and ingesting food, water and other materials. In food, one can find heavy metals such as lead and mercury, pesticides, organochlorine compounds, and organic compounds such as mycotoxins. Vegetables and fruits may contain many natural compounds, which when tested under laboratory conditions, are found to be carcinogens. The effects of many of these natural toxicants are quite hazardous and detrimental to the health of children (Ames and Gold, 1992).

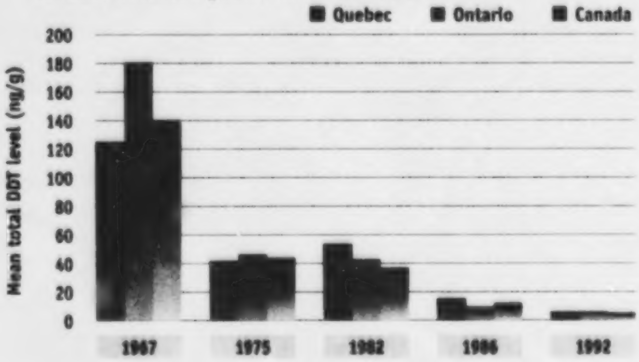
Breast milk

Breastfeeding is widely accepted as the optimum method of feeding for the first year of life. Many toxicants are found at low levels in human breast milk, including prescription drugs, methyl mercury, lead, and estrogen mimickers (Kacew, 1993). Fat-soluble and persistent compounds (e.g. PCBs, DDT, lindane, hexachlorobenzene) absorbed by the mother over her lifetime are also accumulated in breast milk and transferred to the infant during breastfeeding (Mes et al., 1993). See **Exhibit 5.7**.

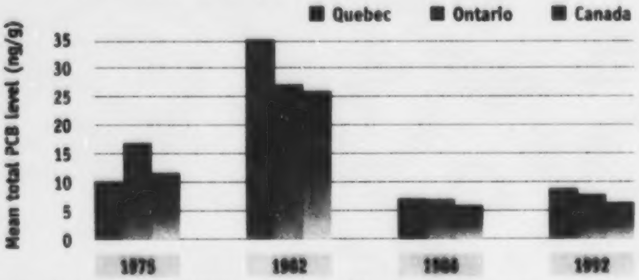
In general, the levels of these chemicals in breast milk are low. It is difficult to determine whether any related health effects originate while the fetus is in the womb or during the course of breastfeeding. There have been suggestions that exposure of infants to PCBs or dioxins in breast milk may be associated with (small) neurological and immunological abnormalities, although frequently these effects were transient (Rogan and Rogan, 1994). Since the 1970s, the levels of PCBs and organochlorine pesticides in human breast milk have dropped (Mes et al., 1993). Nevertheless, both Health Canada and the World Health Organization, among others, have concluded that human breast milk is generally the safest, most nutritious food available for human infants.

5.7 DDT and PCBs in human breast milk, Quebec, Ontario and Canada, selected years, 1967 to 1992

A. Levels of DDT in human breast milk: Quebec, Ontario and Canada, selected years, 1967 to 1992



B. Levels of PCBs in human breast milk: Quebec, Ontario and Canada, selected years, 1975 to 1992



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Lead

Lead compounds can be found in vegetables, cereals and drinking water. Especially when vegetables are grown in soil containing lead, levels can be high and can become a dangerous source of lead in the diet (Health Canada, 1997a, p. 134). However, since lead in the environment is declining, this issue is of minimal importance in the Canadian food supply.

Methyl mercury and PCBs in fish

Inuit infants of Nunavik have high levels of mercury and PCBs in the umbilical cord blood; the mercury levels are nearly 14 times higher than those recorded in newborn babies in the general population. Their mothers had consumed large amounts of fish and fat from marine mammals, which contained increased levels of methyl mercury. Although the health effects at this level of exposure are not known, this level of exposure is a concern (Muckle, Dewailly and Ayotte, 1998, pp. 22–23). See **Exhibit 5.8**.

5.8 PCBs and mercury in umbilical cord blood, selected populations, 1993–96

A. Concentrations of PCBs* (µg/L) in umbilical cord blood

Population	N	Average†	Range
Nunavik (Quebec), Inuit‡	480	2.0	0.2–18.6
MacKenzie/Kitikmeot (NWT), Inuit¶	62	1.0	0.2–5.1
Baffin Region (NWT) Inuit§	66	1.7	0.4–28.3
NWT Déné/Métis¶	47	0.2	0.0–2.3
Lower and Mid-North Shore Montagnais††	101	2.0	0.3–15.0
Lower and Mid-North Shore coastal population††	111	1.0	0.1–8.2
NWT non-Aboriginal¶	125	0.3	0.0–1.9
Southern Quebec general population‡‡	656	0.5	0.1–3.9

* Aroclor 1260 is made by combining PCB congenerics numbers 138 and 153 and then multiplying the result by 5.2.

† Geometric average ‡ ref. no. 37 ¶ ref. no. 38 § ref. no. 39 †† ref. no. 40 ‡‡ ref. no. 41

B. Concentrations of mercury (µg/L) in umbilical cord blood

Population	Year	N	Average†	Range
Nunavik (Quebec), Inuit‡	1993–96	475	14.2	1.0–104.0
MacKenzie/Kitikmeot (NWT), Inuit¶	1994–95	62	5.7	n/a
Baffin Region (NWT) Inuit§	1996	67	10.4	0.6–75.8
NWT Déné/Métis¶	1994–95	47	1.9	n/a
Lower and Mid-North Shore Montagnais††	1993–95	102	2.1	0.2–14.0
Lower and Mid-North Shore coastal population††	1993–95	111	2.3	0.4–15.8
NWT non-Aboriginal¶	1994–95	121	1.7	n/a
Southern Quebec general population‡‡	1993–95	1109	1.0	0.2–13.4

n/a = not available

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Source: G. Muckle, E. Dewailly and P. Ayotte (1998). "Prenatal Exposure of Canadian Children to Polychlorinated Biphenyls and Mercury." In *Canadian Journal of Public Health*, Vol. 89, Supplement 1, p. S22.

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Nitrates

High levels of nitrates are found in certain vegetables and fruits, especially when fertilizers are used extensively to grow the food. In addition, a 1993 survey in Ontario found that up to 40% of all rural wells may be contaminated with high nitrate levels and/or fecal coliform bacteria (Environment Canada, 1996, p. 11-17). High levels of nitrates in drinking water, once converted to nitrite, can give rise to serious health problems for infants. This contaminant will impair the transportation of oxygen from the lungs to the tissues of the infants, a condition known as methemoglobinemia (Bruning-Fann and Kaneene, 1993).

Pesticides

Pesticides are products registered by the federal government. One objective is to minimize applicator, bystander and consumer exposure to the pesticides and their by-products. Children may be exposed to pesticides from residues on the food and in the drinking water they consume, as well as through contact with pesticides when they are used around the home and in recreational areas such as parks. As well, children can accidentally ingest pesticides when they are improperly stored or discarded. The susceptibility of infants and children to pesticides in the diet was examined by a committee from the U.S. National Research Council (National Research Council, 1993). It identified age-related variation in susceptibility, toxicity and exposure to pesticides.

Soil Quality

Soil can become contaminated through waste disposal, pesticide use and industrial pollution. Soil contamination is usually confined to sites where chemicals have been dumped, either intentionally (e.g. at an isolated industrial site) or accidentally (e.g. from a leaking oil tank). Hazardous waste disposal sites are of special interest because many sites are located close to urban areas. Unfortunately, the scale and nature of the contaminants in old dump sites are unknown because permits, regulatory controls and records were not kept (Environment Canada, 1996, p. 12-23).

Infants and toddlers are particularly at risk from contaminated soil because they frequently place their hands in their mouth while playing and eating. The amount of soil ingested while playing outside is age dependent. It is estimated that on average, a child will consume approximately 35 mg to 50 mg of soil per day. Children with an abnormal craving or appetite for non-food substances, known as "pica," will eat between 5 g and 10 g of soil per day (Calabrese, Stanek and Gilbert, 1991). A study correlating the levels of metals in soil with metal blood levels in children found a weak association between the two (Jin and Teschke, 1995).

Waste disposal sites

It has been difficult to assess the effects of hazardous waste disposal sites on health. The famous Love Canal case, in which industrial waste from a chemical lindane plant was deposited into the canal, has been widely studied. After the plant was closed and the old canal bed turned into a housing development, the area became a major research site. Several studies concerning this site have indicated an association between maternal exposure and low birthweight and chromosomal abnormalities (Gochfeld, 1995).

Radiation and Global Warming

UV radiation

The ozone layer is situated in the stratosphere, between 18 km and 35 km above ground level, and shields us from excessive ultraviolet (UV) radiation. However, since the 1960s, the ozone layer has become thinner because of the release of chlorinated fluorocarbons (CFCs). These compounds are non-toxic, very stable and used extensively as cleaning fluids, refrigerants and propellants. They accumulate in the stratosphere, slowly depleting the ozone layer (Environment Canada, 1996, p. 15-19).

Exposure to UV radiation is beneficial because it produces vitamin D. However, excessive exposure causes skin burns. Infants especially have a thin skin and are prone to sunburn. Just a few sunburns in early life can increase the risk of developing skin cancer as an adult (Health Canada, 1997a, p. 75).

Radon

Radon is a naturally occurring, radioactive gas originating from uranium in the soil. It can accumulate in basements through cracks in the foundation and contaminate the indoor air. Exposure to high levels of radon is linked to lung cancer, especially in miners (Axelson, 1995); exposure to indoor radon is also associated with myeloid cancer, cancer of the kidney, melanoma, and certain childhood cancers (Henshaw, Eathough and Richardson, 1990). Henshaw, Eathough and Richardson (1990) plotted the provincial mean radon concentrations against the incidence in childhood leukemia, and found a dose-response effect. A study in Winnipeg did not find an increased risk of indoor air radon and lung cancer in adults (Letourneau et al., 1994).

Global warming

Increases in carbon dioxide (CO_2) levels in the atmosphere play a key role in the greenhouse effect; they trap energy from the sun, thereby causing a slow increase in the global temperature. (CO_2 is released by the combustion of fossil fuels.) In Canada, the average temperature has increased more than 1°C over the last century (Environment Canada, 1996, p. 15-11).

Although a warmer climate for Canada sounds appealing, the effect of a higher average temperature on child health is not clear. Global warming may contribute to more extreme weather conditions with a subsequent increased risk of storms and flooding. In addition, children can be exposed to an increasing number of infectious diseases, specifically those which are now mainly confined to more tropical areas (Health Canada, 1997a, p. 77).

Conditions and Trends: Built Environment

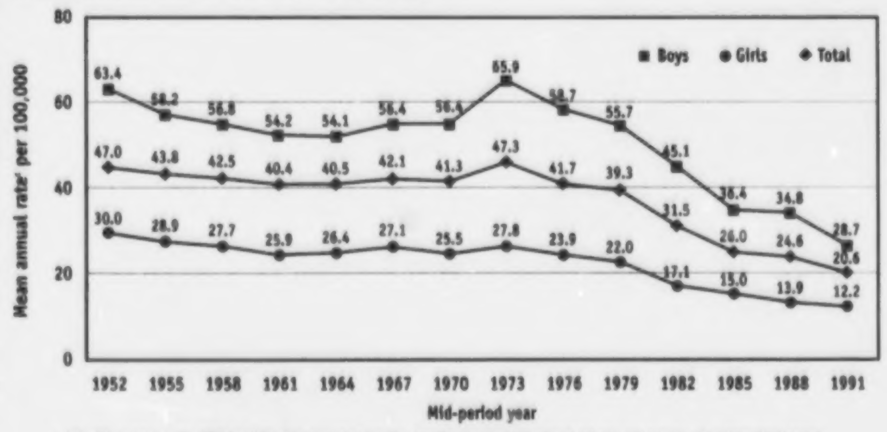
The built environment has a major impact on the health and development of children. It includes the buildings, parks, businesses, schools, road systems, and other infrastructures that children encounter in their daily lives. Children need protection and a safe physical environment. Protection from physical injuries is a key aspect of a healthy physical environment. Well-designed homes, streets, transportation systems and playgrounds promote the safety and health of children and youth.

Injuries: A Major Health Threat

Injuries are a major environmental health threat. In 1990 alone, about 1,500 children in Canada died from injuries and 81,000 were hospitalized because of injuries (Health Canada, 1997b, p. 17). Injuries are the leading cause of death for children and youth after age 1 and the second leading cause of hospitalization (respiratory illnesses are number one) (Health Canada, 1997b, pp. 16–17). While traffic injuries are the leading cause of injury death, falls are the main type of injury for which children are admitted to hospital (Health Canada, 1997b, pp. 20–21). For each child who dies from an injury, many more require hospitalization, emergency room care and follow-up visits to health professionals. The financial cost to taxpayers is great (Angus et al., 1998), and the personal cost, the residual disability and continued suffering are substantial. Injury-related deaths have continued to drop in Canada — from 31.5 per 100,000 in 1981–83 to 20.6 per 100,000 in 1990–92 (Health Canada, 1997b, p. 22). See **Exhibit 5.9**.

There is a correlation between injuries and a child's developmental stage and daily activities.

5.9 **Injury-related death rates[a] for selected years, by sex, 0- to 19-year-old children and youth, Canada, 1951–53 to 1990–92[b]**



a. ICD, 9th revision codes E800 to E999. This grouping includes intentional and unintentional injuries and injuries of undetermined intent.
b. Three-year periods: January 1, 1951 to December 31, 1992.
c. Denominator: Population aged 0–19, Canada.

Source: Health Canada (1997). *For the Safety of Children and Youth: From Injury Data to Preventive Measures*. Catalogue No. H39-412/1997E. Ottawa: Health Canada, p. 22.

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period, 4% of the homes did not have hot or cold running water (a decrease from 17.7% 10 years ago) and 9% were without sewage disposal systems (down from 28% 10 years earlier) (DIAND, 1998, p. 48).

Gender

For every kind of injury and at every stage of development beyond age 1, boys are more likely to die or be injured than girls. Depending on the injury, boys have between two and four times more injuries than females, especially for injuries involving speed and sports (Health Canada, 1997b, p. 221). The explanation for these differences is difficult to ascertain and complex (Morrongiello, 1998).

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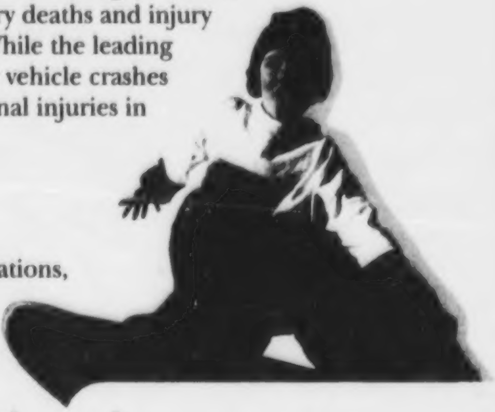
Injury and infants

Infancy and preschool is a time of increased exploration and a time when children are likely to spend a large proportion of their time at home. Their hand-to-mouth activity increases the likelihood that they may ingest harmful substances or suffocate. For infants, suffocation is the leading cause of injury-related death while for other preschool children, traffic injuries are the leading cause of injury death (Health Canada, 1997b, p. 20). Falls are the major cause of hospitalization for infants and preschoolers (Health Canada, 1997b, p. 21). Other important causes of injuries for infants and preschoolers are: burns and scalds from sources such as hot tap water and hot beverages; suffocation/choking on foods or small objects; and poisoning (Health Canada, 1997b, p. 21; Rivara, 1994).

Injury and school-age children

By the time children reach school age, they feel competent to head to school on their own and are keen to learn, gain independence and begin to make decisions. School-age children experience fewer injury deaths and injury hospitalizations compared with toddlers and youth. While the leading cause of hospitalization is respiratory illnesses, motor vehicle crashes and bicycle mishaps are notable causes of unintentional injuries in this age group (Health Canada, 1997b, pp. 20–21).



Injury and adolescents

Adolescence is a period of rapid growth, high expectations, and a time of significant risk taking, increasing the likelihood of serious injury for this age group. In the 1990–92 period, traffic incidents were the major cause of unintentional injury death, accounting for nearly 83% of the deaths, while drownings contributed another 9%. During the same period, hospitalizations resulted from non-intentional injuries caused by traffic collisions (60%) and falls (30%) (Health Canada, 1997b, pp. 20–21).

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Home Environment and Injuries

Housing standards and availability

Most Canadians are housed in good quality homes. According to 1991 data, the majority (68%) of Canadian households met federal adequacy and affordability standards (CMHC, 1991; CCSD, 1996, p. 29). However, the remaining families lived in substandard houses, classified as such because they needed repair, were too small for the family, or were too expensive for the family budget (CCSD, 1996, p. 30). Poor housing conditions have a direct effect on injuries because many substandard houses are often in a poor state of repair.

Safety in the home

Injuries are most likely to occur in the home. About 80% of the children under 4 years of age are injured at home (Health Canada, 1997b, p. 29). As children grow up they spend less time at home, and statistics reveal that injuries increasingly occur outside the home.

Three quarters of home-based injuries to children happen in the house while the other one quarter occur in the garden or garage (Health Canada, 1997b, p. 72). In 1993, some of the leading causes of injuries at home were falls (46.3%), burns (3.4%) and accidental poisonings (3.2%) (Health Canada, 1997b, p. 73).

Many household products including cleansers, disinfectants, medicines, alcohol, solvents, cosmetics and mothballs are potential hazards for small children and should be kept out of their reach and in child-resistant containers. Garages and basements often contain items such as paint or paint thinner, bottled or liquid gas, glue, gasoline, and other automotive products. Very young children do not have the ability to judge what is harmful, and for this reason it is not surprising that 97% of the poisonings in this age group occur while children are exploring their own homes (Health Canada, 1997b, p. 162).

Home Environment and Chemical Exposure

Indoor air

Indoor air quality is critical to children's health because they spend so much time indoors. Numerous sources of indoor contaminants influence the quality of indoor air, including exposure to second-hand smoke (ETS). Volatile organic compounds (VOCs) are released from furnishings made with pressed wood products, from household cleansers, and from personal care and pest control products. Biological agents such as moulds, dust mites and pet dander are common indoor contaminants. This "cocktail" of indoor air pollutants is further aggravated by a number of factors including the number of smokers and levels of humidity and ventilation. Adequate ventilation and the position of vents can significantly reduce the pollution levels in a house or building (Fernandez-Caldas et al., 1995). For instance, open windows will reduce indoor air pollutants efficiently at the height of a sitting adult; however, closer to the floor — the space toddlers occupy while playing — the ventilation is less efficient (Fenske, 1992).

Environmental tobacco smoke

Environmental tobacco smoke (ETS), or second-hand smoke, is one of the most common indoor air pollutants (Raizenne, Dales and Burnett, 1998, p. 45). Almost 2.8 million Canadian children under the age of 15 are exposed to ETS at home. ETS contains more than 4,000 chemicals, including benzene, tar, nicotine, particulates and other cancer-causing agents (Health Canada, 1997a, p. 60).

Children exposed to a smoke-filled environment experience numerous negative health effects (Stoddard and Miller, 1995). They are at greater risk of death from respiratory diseases and sudden infant death syndrome (DiFranza and Lew, 1996). They have more visits to the physician and are hospitalized for more lower respiratory tract infections such as bronchitis and pneumonia (DiFranza and Lew, 1996). They have a reduced lung function (Cunningham, Dockery and Speizer, 1994) and an increased susceptibility to infections from viruses and bacteria (Wjst et al., 1994). Second-hand smoke also triggers asthma attacks and increases the frequency and severity of the attacks in children (Shephard, 1992).

Volatile organic compounds

VOCs are a varied mixture of compounds, consisting of aldehydes, aromatic hydrocarbons and chlorinated compounds, to name a few. Formaldehyde is an eye and throat irritant and results from outgassing of pressed wood, urea formaldehyde foam insulation (UFFI) and glues. Other VOCs such as methylene chloride and toluene may also be released when painting (Fernandez-Caldas et al., 1995; Raizenne et al., 1998). Benzene is present in indoor air from cigarette smoke and in fumes from adjacent garages. Chloroform and 1,2 dibromoethane are derived from evaporation of tap water, especially during showering. Dichlorobenzene is derived from mothballs. If pets or pests are in the house, pesticides may be used (Raizenne, Dales and Burnett, 1998).

It is difficult to assess the health impact of the complex mixture of pollutants found in houses, schools and public buildings. Many of these compounds are carcinogenic and may increase the risk of cancer in children. In addition, some VOCs can increase the risk of neurological and behavioural abnormalities and may affect respiration (Fernandez-Caldas et al., 1995).

Water quality

For children, two important routes of exposure to lead in the house are lead in water pipes and paint. Houses built before 1950 are connected to the water mains by lead pipes; houses built before 1988 may contain copper pipes with lead solder (Health Canada, 1997a, p. 93). The adverse health effects of lead are well recognized, as discussed earlier (Needleman and Gatsonis, 1990). Tap water is a minor source of exposure to lead, with levels in untreated water generally below 1µg/L (Health Canada, 1997a, p. 93).

Home Environment and Biological Exposure

Moulds, dust mites and pet dander are very common biological contaminants in the home. These allergens can cause a number of reactions in children, especially in infants and young children who both still have an immature immune system (Bessot, de Blay and Pauli, 1994; Dales et al., 1991). Their systems may respond to allergens by developing hypersensitivity, allergies or asthma. About 25% of children have allergies (Chad, 1995).

Asthma is more frequent in younger children than older children. In boys 0 to 4 years of age, the prevalence of asthma is 15% and drops to 5% by 10 to 15 years of age (CICH, 1994a). See **Exhibit 5.10.** Development of asthma is associated with house dust mites and moulds (Marks et al., 1995), while in poorer inner-city areas, a hypersensitivity to cockroach allergens may be involved (Kang, 1996). If young children are protected from dust or pet allergens, asthma and allergies may be reduced or avoided (Bessot, de Blay and Pauli, 1994).

The School Environment

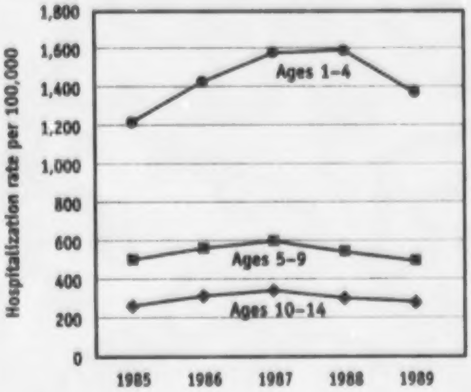
Since children spend a great deal of their day in school, a number of the issues mentioned above apply in this setting as well. Children in classrooms with insufficient air circulation could be exposed to numerous harmful compounds, which may cause sick building syndrome (Chester and Levine, 1994). This exposure may be made worse in school settings in which chemicals are used, such as laboratories and art and technical classrooms.

Transportation

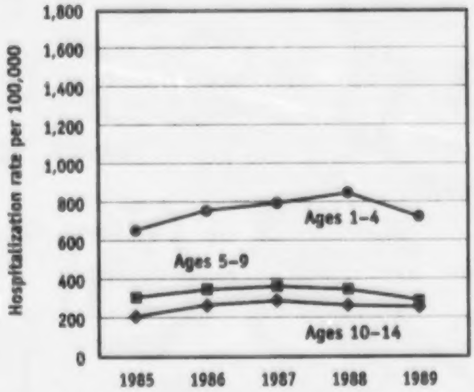
For most families, transport and mobility are essential parts of modern day life. In 1993, there were 12 million registered vehicles in Canada, respresenting almost one for every two Canadians (Environment Canada, 1996, p. 2.18). See **Exhibit 5.11**. Vehicles pose a risk because the exhaust pollutes outdoor air which in turn impacts on the respiratory health of children. Although cars are important in modern society, they place children and youth at risk of injury and death.

5.10 **Trends in asthma-related hospitalization rates for children, by sex and age, Canada, 1985 to 1989**

A. Boys

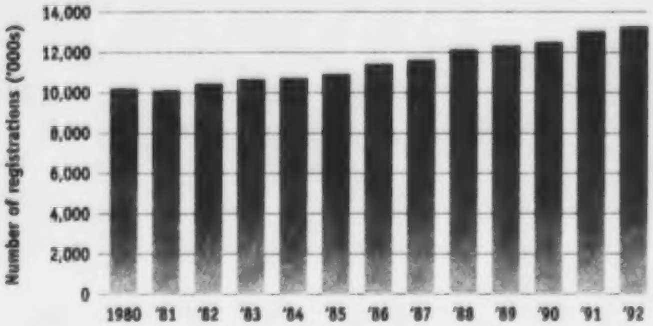


B. Girls



Source: Canadian Institute of Child Health (1994). *The Health of Canada's Children — A Statistical Profile*. Vol. 1, I-II8, Vol. 2, IV-14. Ottawa: CICH.

5.11 **Total passenger car registrations, Canada, 1980 to 1992**



Source: Government of Canada (1996). *The State of Canada's Environment — 1996.* Ottawa: available from Environment Canada, p. 2-18. Reproduced with the permission of the Minister of Public Works and Government Services, 1998.

Independence and mobility

The opportunity to gain independence during childhood is an important expression of growing up. To cycle, to walk, to use the public transportation — these are all opportunities that enhance children's daily lives. For children with disabilities, mobility and access to their environment are major factors in their ability to acquire independence. Special aids and public transportation are largely accessible to children with disabilities in major urban centres. About 7% of children 0 to 14 years old with disabilities and 4.5% of youth with disabilities have difficulty leaving their residences to take short trips. Of those in the 0 to 14 age group, almost 9% have difficulty getting together with children their own age (CICH, 1994b, pp. 158–162).

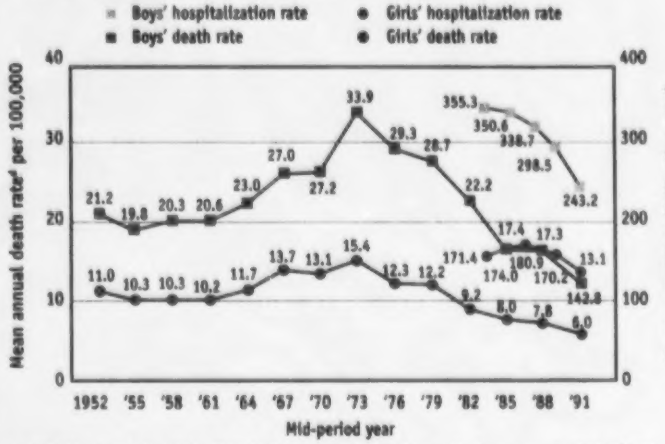
Safety on the roads

In 1990–92, on average, two children died per day as a result of motor vehicle accidents (MVAs), while more than 38 children were hospitalized. The rate of MVA injuries is age dependent, with the highest rate observed in the 15- to 19-year-old age group (Health Canada, 1997b, pp. 42, 44, 76). See **Exhibit 5.12.** For teenagers, driving is both a means of transportation and recreation. Because they are new and inexperienced drivers and have an exaggerated sense of their driving abilities, young males have a much greater risk of being in motor vehicle crashes (DeJoy, 1992). Drivers with at least five years' driving experience have half the mortality or morbidity rate compared with drivers with less than two years' experience (Health Canada, 1997b, p. 82).

In 1990–92, 116 children died as pedestrians and an additional 1,793 children were hospitalized following a collision with a motor vehicle. Those 5 to 9 years of age are the most vulnerable to this injury (Health Canada, 1997b, pp. 95–96).

In 1990–92, 46 children who were cycling died as a result of a motor vehicle collision, and an additional 3,644 were hospitalized. Most injuries occurred among children aged 5 to 14, accounting for 70% of the cycling-related deaths and 77% of the hospitalizations (Health Canada, 1997b, p. 109). It is estimated that 70% of fatal collisions were due to cyclist error (Health Canada, 1997b, p. 108).

5.12 **Death and hospitalization rates for injuries related to motor vehicles and other road vehicles,[a] by sex and period, children and youth aged 0 to 19 years, Canada,[b] 1951–53 to 1990–92[c]**



a. ICD, 9th revision, codes E810 to E829. Excludes any accident involving an aircraft or spacecraft (E840 to E845); a watercraft (E830 to E838); a train (E800 to E807).

b. Data unavailable for Prince Edward Island, New Brunswick, Yukon Territory and Northwest Territories.

c. Deaths, three-year periods: January 1, 1951 to December 31, 1992. Hospitalizations, two-year periods: April 1, 1982 to March 31, 1992.

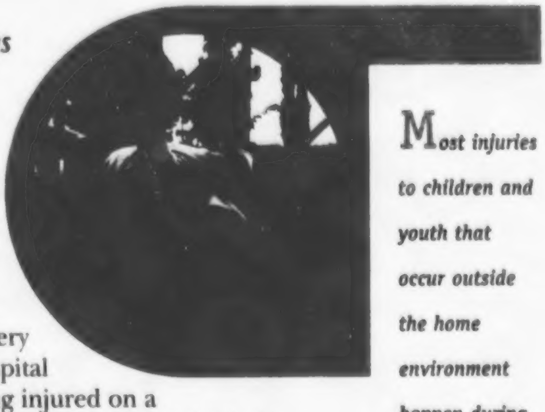
d. Denominator: population aged 0–19, Canada, 1991 Census. For hospitalization rates, denominator excluded population from Prince Edward Island, New Brunswick, Yukon Territory and Northwest Territories.

Source: Health Canada (1997). *For the Safety of Children and Youth: From Injury Data to Preventive Measures*. Catalogue No. H39-412/1997E. Ottawa: Health Canada, p. 62.

Recreational Environment and Injuries

Other important environments for children and youth are playgrounds, parks and recreational buildings such as pools, gyms and arenas. Most injuries to children and youth that occur outside the home environment happen during play and leisure activities.

Playground equipment and sports settings



Playground equipment is designed to help children's development, but it can also be dangerous. Although standards for playgrounds and equipment have been established by the Canadian Standards Association (Canadian Standards Association, 1990), and were updated in 1998, playground standards are often loosely interpreted and implemented (Health Canada, 1996, p. 71). Every year, thousands of youngsters are treated at hospital emergency rooms or are hospitalized after being injured on a playground or during a sporting event. Nearly 42% of playground injuries occurred in public playgrounds and 34% at school and/or in a child-care setting. For children under 5 years of age, 50% of playground injuries happened in public playgrounds. School-age children are more likely to be injured either at school (41%) or while playing in public recreational spaces (39%) (Health Canada, 1997b, p. 201).

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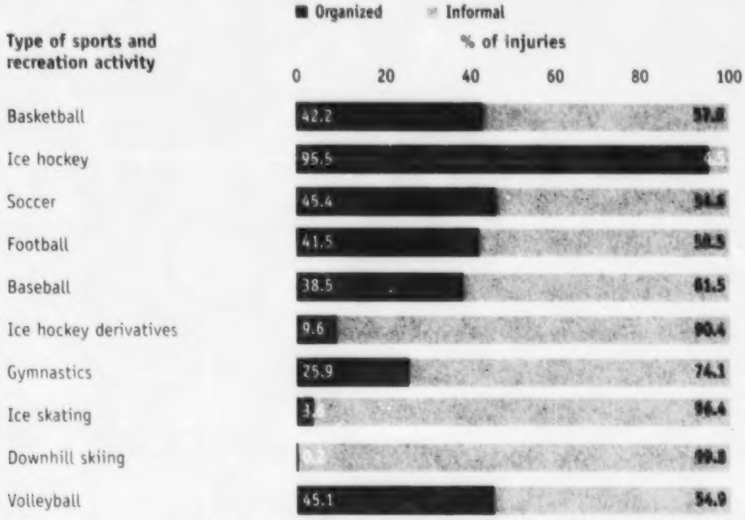
5.13 **Distribution of injuries related to the 10 leading sports and recreation activities,[a] by mode of practice, children and youth aged 0 to 19, Canada, 1993**



a. Excludes drownings, near drownings and other water-related injuries, playground equipment injuries, cycling injuries and off-road vehicle injuries.

Source: CHIRPP, unpublished data, 1993.

Sports injuries are also very common. CHIRPP (Canadian Hospitals Injury Reporting and Prevention Program) data included 16,665 visits by children under 20 years of age to the emergency department in one year because of sports injuries. These injuries accounted for about 36.4% of all visits to the emergency department in the 10 to 14 age group and 40% in the 15 to 19 age group (Health Canada, 1997b, p. 221). See **Exhibit 5.13**.

Recreational Environment and Chemical Exposure

At ice rinks, children may be exposed to increased levels of carbon monoxide (CO) or nitrous oxide (NO_x) (Lee et al., 1994). At swimming facilities, children are exposed to high chlorine levels in water and air (Levesque et al., 1994). In addition, children in classrooms with insufficient air circulation could be exposed to numerous harmful compounds (sick building syndrome) (Chester and Levine, 1994).

Recreational Environment and Biological Exposure

Polluted beaches and other polluted recreational waters are a source of gastro-intestinal, respiratory and skin infections. Swimmers at several of Ontario's beaches were 2.3 times more likely to develop an infection than non-swimmers (Seyfried et al., 1985). In addition, windsurfers on the St. Lawrence River were 5.5 times more likely than observers to suffer gastrointestinal illnesses and 2.9 times more likely to develop ear, eye and skin infections (Dewailly, Poirier and Meyer, 1986).

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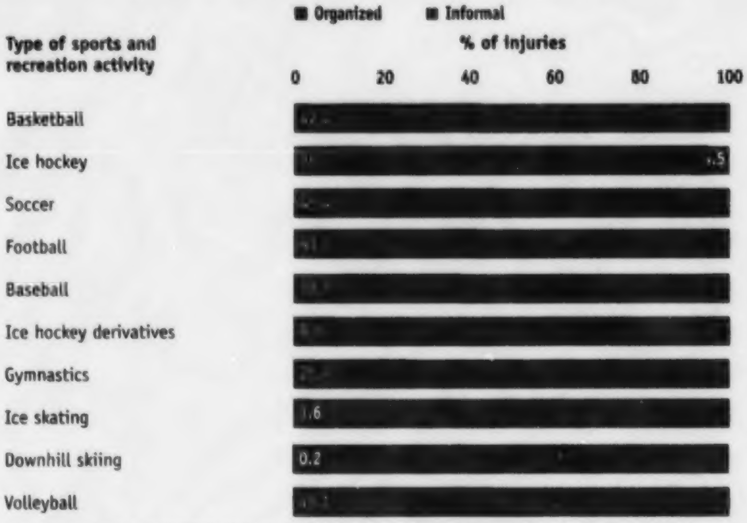

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Environment and Other Determinants

Income

Poverty increases a child's risk of injury. A study by Health Canada showed that poor children are more likely to die of injuries than other children and that children living in the lowest income neighbourhoods are at the greatest risk of dying from injuries. The rate of injury-related deaths for the poorest children and youth was 40% higher than the rate for the wealthiest children and youth (for many types of injuries) (Health Canada, 1997b, p. 54).

The children with the greatest exposure to the effects of environmental pollution are those that are poor. Poor children live in social and low-rent housing located close to industrial sites, highways and interchanges and on sites previously used for toxic waste disposal. Children in families with low incomes are at risk because they are more likely to live in houses that have not been well maintained and have faulty design. These factors contribute to the increased likelihood of poor indoor air quality from sources such as: moulds; lead (from chipping paint); and contaminants (e.g. pesticides to control cockroaches) (Chaudhuri, 1998, p. 27).

Personal Health Practices

Among the most important sources of indoor air contamination is environmental tobacco smoke (ETS). Infants and young children whose parents smoke in their presence are particularly susceptible to a number of health risks including lower respiratory infections and asthma. Thirty-nine percent of children under the age of 6 live with one or more people who smoke; 46% of Canadian households include one or more smokers (Health Canada, 1997c).

Culture: Aboriginal Children

Aboriginal children are at greater risk of injury than all other children in Canada. Injuries are a major cause of mortality for Aboriginal children and youth. Their infant injury rate is almost four times that of other Canadian infants (Health Canada, 1997b, p. 55). The injury death rate for Aboriginal teenagers is more than three times the rate for Canadian teenagers (CICH, 1994b, p. 143).

Aboriginal children are at greater risk of exposure to contaminants than other Canadian children. Risk factors such as poor housing, contaminated food sources, water supply and sanitation, and indoor and outdoor environmental contaminants make Aboriginal children especially vulnerable to the toxic effects of environmental contaminants (Postl, MacDonald and Moffat, 1994; Young, Bruce and Elias, 1991).

Aboriginal families are more often housed in accommodation that is substandard than are non-Aboriginal households. In 1996–97, 48% of the dwellings on reserves required renovations or replacement. During this same

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Chapter

6

Personal Health Practices

Overview

Personal health practices, such as smoking, use of alcohol and other drugs, healthy eating, physical activity, and sexual practices have a profound effect on the health and well-being of Canadians. Unintentional injuries — related to motor vehicle accidents, falls, aquatic mishaps and fires — are the largest single cause of death for children and youth.

There is strong evidence that early childhood experiences influence the adoption of healthy practices in childhood and later in life. Infants born at a normal birthweight and young children who enjoy quality child care, good nutrition and plentiful opportunities for stimulation are more likely to practice health-promoting behaviours in later life. Similarly, children who develop strong coping skills, competence and self-esteem tend to engage in health-promoting behaviours.

Personal health practices exert an influence on children's health. Low birthweight, which increases the risk of developing certain health problems and disabilities, may be associated with a number of undesirable maternal behaviours during pregnancy, including poor nutrition, smoking, and alcohol and drug use.

Health practices are learned within the context of family, community and society — beginning at an early age and continuing through the transition from primary school and puberty to secondary school and the work force. Parents' modelling of behaviours such as smoking and physical activity can influence the adoption of these behaviours by their children. Societal values and attitudes influence health behaviours and choices, as do social and emotional support from families, friends and communities.

Relationship to Healthy Child Development

Early experience sets the stage.

Two of the critical periods of child development occur during pregnancy and adolescence. Behavioural risks during these times can have a negative effect on development. For example, during the prenatal period, risk behaviours of the mother, such as smoking or alcohol consumption, have the potential to exert adverse effects on the fetus such as low birthweight or premature birth. Another critical period is during the adolescent years when youth are becoming increasingly independent. At this stage in development, adolescents may be faced with tremendous pressure to engage in activities and behaviours that could have serious and potentially lasting implications (e.g. unprotected sex, alcohol and drug use). In both of these stages, such challenges are influenced by the individual's sense of values, knowledge and societal expectations.

While progressing through the various developmental stages from conception to adulthood, children and youth may encounter many challenges and situations that entail risk. In addition to protecting children from potential dangers, parents (and society) need to guide children through these pressures, giving them the skills, knowledge and confidence to face these challenges in a responsible, productive way (Guy, 1997, p. 46).

The health status and behaviour of pregnant women have a major impact on the health, well-being and long-term development of their children. In extreme cases, a woman's health status or behaviour can result in severe problems for her child, such as very low birthweight, neurological abnormalities or developmental delays (Health Canada, 1996a, p. 4).

Babies with low birthweights are at a significantly increased risk of illness and death. In fact, low birthweight is the determining factor in about 15% of all deaths among newborns; those who survive are at greater risk of developing health problems and disabilities (CICH, 1994, pp. 21, 27).

Breastfeeding safeguards infants' health.

Breastfeeding is widely recognized as the best way to feed infants. It provides nutritional and emotional nurturing as well as immunological benefits, all of which enhance an infant's growth and development. There is strong evidence that infants who are breastfed have increased protection against respiratory, ear and intestinal infections (Canadian Dietetic Association, 1998). Breastfeeding may also supply some protection against sudden infant death syndrome (SIDS) (Health Canada, 1999a, p. 2).

Positive parenting plays a role.

Early stimulation and positive parenting are essential for children's healthy development. New evidence shows that brain development before age 1 is more rapid and critical than was previously realized. There is widespread agreement that the first two years of life represent a "window of opportunity" for providing the stimulae for certain kinds of brain development. If this crucial period passes, the full potential for certain aspects of brain development may be lost (Kalil, 1989).

Exposure to unhealthy physical and social environments in early childhood may have health implications for children and youth. For example, children who are raised in a family that is unable to provide the basic physical and emotional necessities for optimal development may be at increased risk of negative health outcomes — emotionally, behaviourally and academically. This risk increases exponentially with each additional condition of risk (e.g. exposure to abuse, exposure to substance abuse present in the household).

Healthy eating and physical activity contribute to better health.

While the overall nutritional health of Canadians is good, the eating patterns of some Canadians contribute to the high incidence of such nutrition-related chronic diseases as cardiovascular disease, diabetes, osteoporosis and cancer (Canadian Dietetic Association, 1996, p. 4). The development of most of these diseases is a gradual process which often begins in childhood or youth. Food choices play an important role in nutritional health and significantly influence health status.

Physical activity has been directly linked to health outcomes for children and adults. People who have an active lifestyle reduce their risk of disease and chronic conditions, and are better able to resist stress and depression. Evidence also suggests that participation in various types of physical activity leads to increased self-esteem and a pattern of healthy eating, including eating foods that contain more fibre and are lower in fat and higher in complex carbohydrates (Stephens and Craig, 1990).

Children are susceptible to injury.

Unintentional injuries are the leading cause of death for children over the age of 1 (CCSD, 1996, p. 24). The natural course of growth and development places children at higher risk for certain types of injuries at different stages in their lives. Most injuries to infants and young children (age 5 to 9) result from falls and other incidents occurring in the home (38%); older children (age 10 to 14) are injured in the home too (23%), as well as during outdoor play (15%) and on roadways (15%) (CICH, 1994, pp. 70–71).

Children need to make informed decisions about smoking, alcohol and drugs.

Childhood experiences have a lasting impact. For example, people who grow up with an alcoholic parent are more likely to abuse alcohol themselves. Those who begin smoking in early adolescence also tend to be more addicted than people who begin later in life (Statistics Canada, 1998).

The health effects of smoking are widely known. Smoking (and environmental tobacco smoke), the leading cause of lung cancer, has also been linked to leukemia, as well as to cancer of the sinuses, brain, breast, uterus, and thyroid and lymph glands (Health Canada, 1999b). Babies of women who smoke or who were exposed to second-hand smoke during pregnancy are, on average, smaller at birth than babies of smoke-free mothers (Health Canada, 1995a).

Generally, continued excessive use of alcohol can damage the liver and eventually lead to cirrhosis of the liver. Alcohol is also a risk factor for the development of some cancers.

Native youths, including both Aboriginal and Métis youth, are between two and six times greater risk for every alcohol-related problem than youth in the general Canadian population (McKenzie, 1997, p. 135).

Adolescents are at risk for pregnancy and sexually transmitted diseases.

The development of intimacy and trust, gender identification and positive sexual and sensual experiences begin in early childhood and influence healthy sexuality and sexual decision making throughout life. Gender is an important issue in sexual health. While sexual and reproductive health is important to both men and women, the onus for preventing pregnancy most often falls on young women. There is strong evidence to suggest that teen parents have lower lifetime earnings and more social problems throughout life (Health Canada, 1999c, p. 4).

Sexually active youth are more vulnerable to the transmission of diseases such as hepatitis B, acquired immune deficiency syndrome (AIDS) and sexually transmitted diseases (STDs) — in part because about half of 15- to 19-year-olds believe they have no risk of contracting STDs (Williamson, 1993, p. 197). Research has shown that most youth are either unaware of or unconcerned about the consequences of STDs, which include pelvic inflammatory disease, infertility, ectopic pregnancy, and chronic pelvic pain (Health Canada, 1999c, p. 14).

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Conditions and Trends

Prenatal and Infant Health

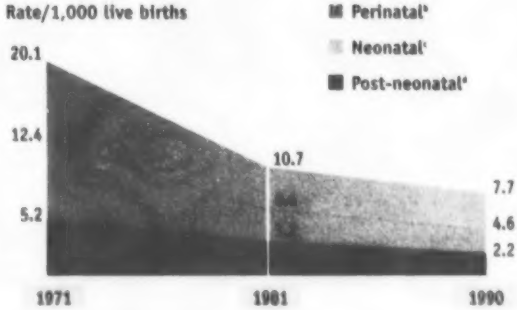
The incidence of low birthweight, stillbirths, perinatal death rates and SIDS has either remained stable or declined in recent years. More Canadian mothers are breastfeeding and most women abstain from smoking during pregnancy.

Most babies are healthy.

While most babies in Canada are born at a healthy weight, in 1990, 21,963 babies — 5.5% of all babies born in Canada — were low in birthweight. The rate of low birthweight has not changed significantly since the 1980s (Statistics Canada, 1992a, pp. 14–15). Rates of low birthweight are virtually the same for the First Nations population as for the general Canadian population. However, high birthweight is a concern in First Nations communities, where 18% of babies are born at a high weight, compared with 12% for the general population (Health Canada, 1996b).

The number of stillbirths (as well as hospitalization rates for spontaneous, unspecified abortions) dropped dramatically across Canada between 1974 (38,973) and 1993 (21,984) (Statistics Canada, 1996, p. 2). Perinatal death rates dropped steadily between 1971, when the rate was 20.1 per 1,000 live births, and 1990, reaching a low that year of 7.7 per 1,000 live births; these figures have levelled off since 1985 (Statistics Canada, 1992b, p. 40). See **Exhibit 6.1**.

6.1 **Perinatal,[a] neonatal, post-neonatal death rates, Canada, 1971 to 1990**



a. No data available for perinatal mortality from 1975.
b. Deaths occuring during the period between 28 weeks gestation and 7 days of life.
c. Deaths occuring in the first month of life.
d. Deaths occuring between 1 month and 1 year of life.

Source: Canadian Institute of Child Health (1994). *The Health of Canada's Children: A CICH Profile*, 2nd edition. Ottawa: CICH, p. 25.

SIDS is a major cause of death for babies.

Sudden infant death syndrome (SIDS) is the leading cause of death for infants between one month and one year of age. In 1995, 252 cases of SIDS were recorded — a decrease from the 266 reported in 1993 (CFSID, 1997). Although the number of deaths due to SIDS has declined overall since 1978, the risk for Aboriginal infants is higher than the risk for non-Aboriginal infants (Health Canada, 1996b). In fact, it is estimated that the incidence of SIDS is approximately three times higher among Aboriginal infants (Canadian Paediatric Society, 1996). Factors contributing to SIDS include sleeping in a prone (tummy down) position, exposure to environmental tobacco smoke, and overheating of the baby (Health Canada, 1999a; Health Canada, 1995b).

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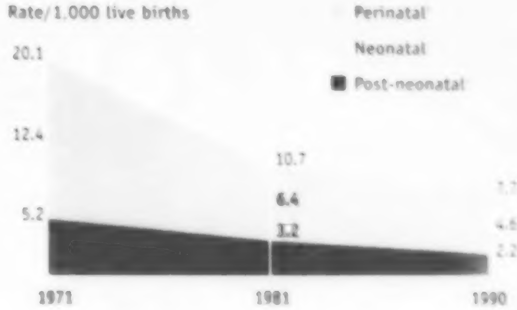

Source: Canadian Institute of Child Health (1994). *The Health of Canada's Children: A CICH Profile*, 2nd edition. Ottawa: CICH, p. 29.

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More mothers are breastfeeding.

In Canada, the proportion of new mothers who initiated breastfeeding their babies had increased from 38% in 1963 (Health and Welfare Canada, 1990, p. 1) to 73% in 1994–95 (Health Canada, 1998a, p. 8). Data for 1994 show that 31% of mothers were breastfeeding their 6-month-old babies (Health Canada, 1998a, p. 25).

One in five pregnant women smoke.

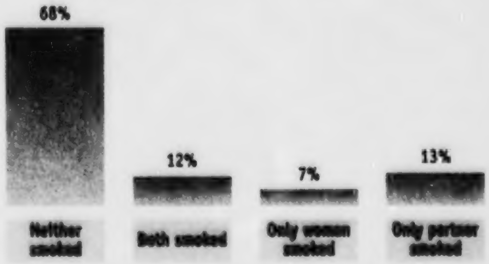
While the majority of Canadian women abstain from smoking cigarettes during pregnancy, 19% of women aged 20 to 44 who had been pregnant in the five years preceding a 1994 study smoked regularly during their most recent pregnancy (Health Canada, 1995c). See **Exhibit 6.2.**

What Contributes to Low Birthweight?

Factors contributing to low birthweight include: poor nutrition, smoking or alcohol and drug use during pregnancy; low pre-pregnancy weight; very young maternal age and multiple births (Federal, Provincial and Territorial Advisory Committee on Population Health, 1996a, p. 11).

Healthy Eating

No current comprehensive national data are available on the eating patterns of children and youth, or on the incidence of obesity among children. However, it is known that infants and growing children are most vulnerable to the adverse impact of nutritionally poor eating patterns. While most Canadian children eat well, Aboriginal children are at higher risk for some nutritional deficiencies (e.g. iron, vitamin D) (Canadian Dietetic Association, 1996, p. 4).



6.2 Proportion of women aged 20 to 44 and their partners who smoke regularly during pregnancy, Canada, November 1994

Source: Health Canada (1995). *Survey on Smoking in Canada — Cycle 3*. Ottawa: Health Canada, Chart 7.2.

Most children have healthy eating patterns.

Research has shown that four in five children aged 10 to 14 eat in accordance with Canada's Food Guide to Healthy Eating, at least partially (CICH, 1994, p. 79). See **Exhibit 6.3.** A qualitative study carried out in 1995 of children's and parents' perceptions of healthy eating showed that most of the children aged 6 to 12 believed they were healthy eaters. Parents of 6- to 9-year-olds also reported that their children ate healthily; however, parents of 10- to 12-year-olds were much less likely to label their children's eating patterns as healthy (Health Canada, 1995d, pp. 10, 12).

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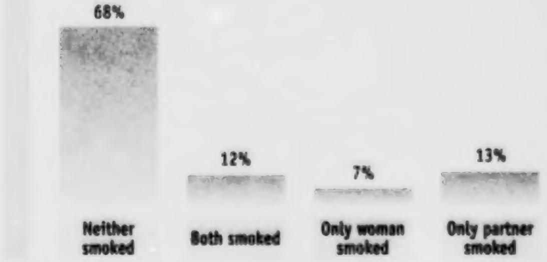

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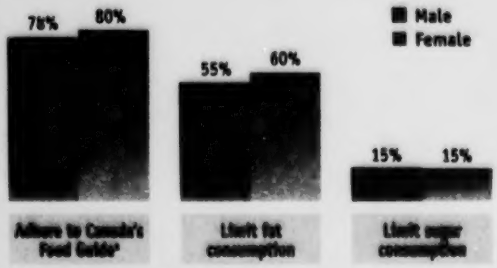
Not everyone has healthy eating patterns.

Intakes of vitamin A, calcium and folacin are frequently below recommended levels in northern and isolated Aboriginal communities (Lawn and Langer, 1994).

While the rate of vitamin D deficiency rickets in children decreased after fluid milk began to be fortified with vitamin D in 1975 (Health Canada, 1998b), the risk is still present, though minimal. Children in northern communities and those with dark skin are at greatest risk for vitamin D deficiency (Canadian Paediatric Society, Dietitians of Canada and Health Canada, 1998, p. 19).

6.3 Proportion of 10- to 14-year-olds reporting use of selected strategies to eat well, by sex, Canada, 1988



a. Partial and high adherence to Canada's Food Guide.

Source: Canadian Institute of Child Health (1994). *The Health of Canada's Children: A CICH Profile*, 2nd edition. Ottawa: Canadian Institute of Child Health, p. 79.

Body Image

Body weight, which is largely determined by eating patterns and exercise, is a significant contributor to children's self-image, which in turn has important effects on their mental health, sense of competence and control over life circumstances. Adolescence is a particularly difficult time for young people — adolescent girls, especially, are at risk for eating disorders.

Girls are concerned with body image.

In 1993–94, an international study showed that 77% of 15-year-old Canadian girls wanted to change something about their body, compared with 57% of Canadian boys (King et al., 1996).

Many female adolescents struggle to maintain a positive self-image. Physical appearance and acceptance figure prominently in their thoughts and self-perceptions. For example, in a study conducted by the Canadian Teachers' Federation, 48.2% of girls "strongly agreed" or "agreed" with the statement "being popular is a big worry for me right now." In addition, 85% of girls "strongly agreed" or "agreed" that they worry a lot about how they look (Canadian Teachers' Federation, 1990, p. 11). A 1998 study showed that more than one third (41%) of 13-year-old girls and almost half (44%) of 15-year-old girls felt that they needed to lose weight or were dieting to lose weight (King, Boyce and King, 1999, p. 70).

Even though girls are less active than boys, the activity level of young women aged 18 to 24 increased substantially between 1981 and 1995.

Eating disorders are a cause for concern among young people.

Young women with negative body image have a higher risk of engaging in disordered eating behaviours (e.g. bingeing and purging, self-induced vomiting, refusal to eat) than those who are not concerned with their body image. Males are not immune to negative body image. Low self-esteem has been linked with obsessive attempts to gain weight among boys and young men — sometimes with the help of anabolic steroids (Health Canada, n.d., p. 2). In 1998, 5% of 13-year-old boys and 4% of 15-year-old boys used anabolic steroids (WHO, 1999).

Among teens and young adults, 1% to 2% suffer from anorexia nervosa, and 3% to 5% from bulimia (Health Canada, 1995e, p. 1). The prevalence of obesity in children has increased dramatically in the past decade — from 14% to 24% among girls and from 18% to 26% among boys (Canadian Dietetic Association, 1996, p. 4).

Physical Activity

Participation in physical activity has far-reaching health impacts. Boys are more likely to be physically active than girls, although there are indications that girls' activity level is increasing.

There is room for improvement.

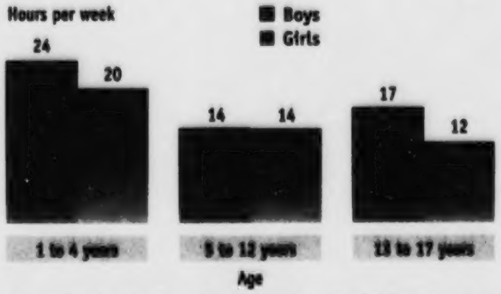
A 1995 study revealed that approximately one third of Canada's children and youth were physically active enough to meet the energy-expenditure standard for optimal health and development (six to eight kilocalories per kilogram of body weight per day). Another one fifth came close to meeting the standard and one fourth met the minimum energy standard — the equivalent of walking for one hour per day (CFLRI, 1997, pp. 1–2). See **Exhibit 6.4.**

Notably, however, one quarter of Canadian children and youth are sedentary — girls, in particular. Adolescent boys spent 50% more energy on physical activities than did girls (CFLRI, 1997, pp. 1–2).

Young women are getting more active.

Even though girls are less active than boys, the activity level of young women aged 18 to 24 increased substantially between 1981 and 1995 (CFLRI, 1996a, p. 3 of chart). Parents' level of physical activity and their belief in the value of being physically active has a strong influence on their children's activity level (CFLRI, 1996b, pp. 2–3).

6.4 **Number of hours per week spent in physical activities, 1- to 17-year-olds, by sex and age, Canada, 1995**



Source: Prepared by the Canadian Council on Social Development using data from Canadian Fitness and Lifestyle Research Institute, *Progress on Prevention*, Bulletin No. 8, 1995. In Canadian Council on Social Development (1997). *The Progress of Canada's Children — 1997*. Ottawa: Canadian Council on Social Development, p. 38.

Smoking, Alcohol and Other Drugs

Adolescents are particularly at risk for such negative health practices as smoking, drinking and using drugs. Despite public health messages warning of the consequences, many young teens try smoking. Alcohol appears to be the "drug of choice" among teenagers, although there are indications that the use of cannabis is increasing.

Smoking is on the rise among some groups.

Data from 1994 reveal that one in six teens had tried smoking by age 11. By age 13, 46% of girls and 41% of boys had tried smoking; by age 15, these numbers had risen to 64% and 58% respectively. Almost 10% of 12- to 14-year-olds reported being regular smokers (CCSD, 1996, p. 45).

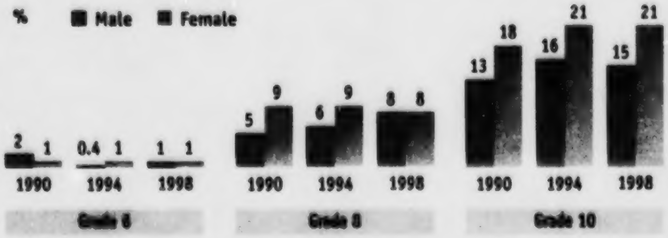
While the total number of Canadians who smoke has decreased since 1981 (Statistics Canada, 1995a, p. 39), the number of young women who smoke continues to increase. The HBSC data show that in 1998, 21% of 15-year-old girls smoked daily, the same proportion as in 1994 but a rise from 18% in 1990 (King, Boyce and King, 1999, p. 95). See **Exhibit 6.5.**

Smoking, Drinking and Drugs

A 1994 study showed that more than 40% of 15- to 19-year-old smokers engaged in heavy drinking, compared with 13% of non-smoking teenagers. Smokers were also more apt to be users of marijuana and hashish (Canada's Alcohol and Other Drug Survey, 1994, as cited in Clark, 1996, p. 6).

The rate of smoking among Aboriginal people is significantly higher than the rate for the Canadian population. Nine percent of First Nations youth aged 10 to 14 smoke daily, and an additional 21% smoke occasionally. Rates of smoking increase rapidly with age: at age 10, 23% of First Nations youth smoke at least occasionally, while by age 14 more than half (53%) do so (Saulis, 1997, pp. ii, 41). On average, Aboriginal people started smoking between the ages of 11 and 15 (Health Canada, 1996c, p. 20).

6.5 **Proportion of students (aged 11, 13 and 15 years) who smoke daily, by sex and grade, Canada, selected years, 1990 to 1998**



Source: A.J.C. King, W. Boyce and M. King (1999). *Trends in the Health of Canadian Youth.* Catalogue No. H39-498/1999E. Ottawa: Health Canada.

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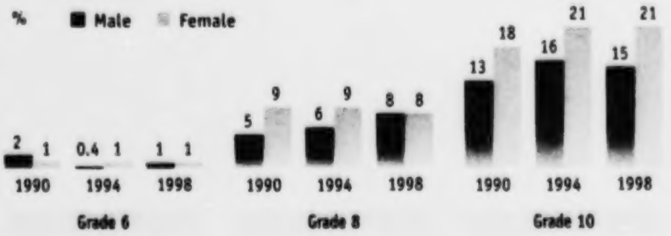


Source: A.J.C. King, W. Boyce and M. King (1999). *Trends in the Health of Canadian Youth.* Catalogue No. H39-498/1999E. Ottawa: Health Canada.

A small percentage of youth also use chewing tobacco. In 1994, 7% of children aged 10 to 14 reported having tried chewing tobacco, including 1% who reported use in the week prior to the survey (Adlaf and Bondy, 1996, p. 51). A 1995–96 survey of First Nations youth showed that 4.5% of youth between the ages of 10 and 14 reported having used the smokeless tobacco product (Saulis, 1997, pp. 45).

Second-hand smoke affects young people.

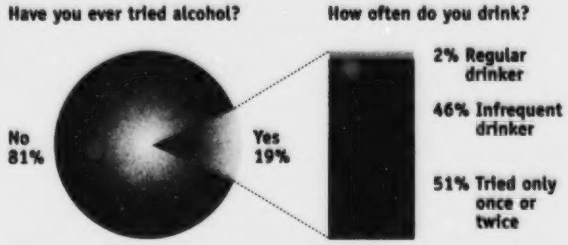
Almost half (45%) of non-smoking teens aged 15 to 19 had daily contact with second-hand smoke. The home is the most common source of second-hand smoke for non-smoking teenagers (Clark, 1998, pp. 3–4).

Alcohol — the teenager's "drug of choice."

A 1994 study showed that among 11-year-olds, 3% of girls and 6% of boys said they were regular drinkers (CCSD, 1997, p. 41). See **Exhibit 6.6**. Twenty percent of teens are heavy drinkers (Federal, Provincial and Territorial Advisory Committee on Population Health, 1996b, p. 202). (Heavy drinking is defined as five or more drinks per drinking session.) See **Exhibit 6.7**. According to *The Ontario Student Drug Use Survey: 1977–1995*, drinking and driving among Ontario youth is on the decline. The percentage of youth in grades 7, 9, 11 and 13 driving within an hour of consuming two or more drinks dropped from 58.1% in 1977 to 24.4% in 1995 (Adlaf et al., 1995, p. 124).

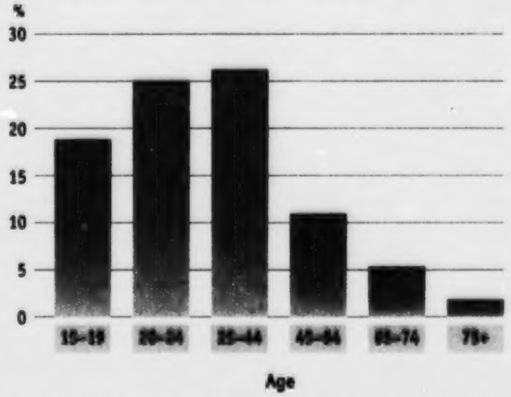
While alcohol is still a primary factor in many road collisions involving young drivers, the proportion of drivers under the age of 21 with illegal blood alcohol content who were fatally injured in motor vehicle accidents has decreased more than 20% since 1977 (CICH, 1994, p. 105).

6.6 **Alcohol use (drinking) among 10- and 11-year-olds, Canada, 1994**



Source: Prepared by the Canadian Council on Social Development using data from Statistics Canada's National Longitudinal Survey of Children and Youth, 1994. In Canadian Council on Social Development (1997). *The Progress of Canada's Children — 1997*. Ottawa: Canadian Council on Social Development, p. 41.

6.7 **Regular heavy alcohol use (drinking)[a] among adults (aged 15 to 75 years), by age, Canada, 1994–95**



a. Drinking five or more drinks on one occasion 12 or more times in the previous year.

Source: Federal, Provincial and Territorial Advisory Committee on Population Health (1996). *Report on the Health of Canadians*. Ottawa: Health Canada, p. 57.

FAS/FAE

Fetal alcohol syndrome (FAS) is one of the leading causes of preventable birth defects and developmental delay (Health Canada, 1996a, p. 4). Fetal alcohol effects (FAE) refers to children with prenatal exposure to alcohol who manifest only some FAS characteristics. It is estimated that one to three children in every 1,000 in industrialized countries will be born with FAS; the rate for children born with FAE may be several times higher (Health Canada, 1996a). Limited studies suggest that the rate of FAS among Aboriginal people may be at least 10 times higher than the rate for the non-Aboriginal population (CCSA National Working Group on Policy, 1994).

The NPHS found that 16% of women under age 25, 24% of 24- to 35-year-olds, and 31% of women over age 35 consumed alcohol during their last pregnancy (Health Canada, 1998c).

Some young people are using other drugs.

Drug use among Canadian youth declined steadily since reaching its peak in the late 1970s. One study of Ontario students in 1995 found that 22.7% of students in grades 7, 9, 11, and 13 reported using cannabis at least once in the year prior to the survey, up from 12.7% in 1993. Between 1993 and 1995, cannabis use increased significantly among those in Grade 9 (8.7% to 19.6%) and Grade 11 (from 22.3% to 40.7%). Despite these recent increases, the 1995 rate of cannabis use among Ontario youth (22.7%) was well below the 1979 rate (31.7%). See **Exhibit 6.8**. The study also found that the percentage of students reporting injection drug use increased from 5.4% to 8.8% in the same period (Adlaf et al., 1995, various pages).

6.8 **Proportion of students who have ever taken marijuana, by selected levels of use, by sex and age, Canada, selected years, 1989 to 1998**

		Boys		Girls	
		13 years	15 years	13 years	15 years
1989–1990	**Never**	89.1%	73.8%	90.1%	76.4%
	Experiment (once or twice)	6.0%	10.5%	5.8%	10.8%
	Regular use (three or four times)	4.9%	15.7%	4.1%	12.8%
1993–1994	**Never**	87.5%	69.5%	89.5%	72.6%
	Experiment (once or twice)	6.7%	11.4%	5.4%	10.7%
	Regular use (three or four times)	5.9%	19.0%	5.1%	16.7%
1997–1998	**Never**	78.9%	55.9%	82.3%	59.4%
	Experiment (once or twice)	8.3%	12.6%	8.4%	11.5%
	Regular use (three or four times)	12.8%	31.5%	9.2%	29.1%

Source: WHO (1999). *Health Behaviour in School Age Children Survey, A World Health Organization Cross-National Study, 1997–98.*

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Information from Health Canada's Bureau of Drug Surveillance shows that, in a 10-year period, the number of charges for all drug-related offences for the 15 to 19 age group increased 62%, from 844 charges in 1985 to 1,368 charges in 1994 (Health Canada, 1996d).

Young people have more experience with cannabis than other age groups. One third of 15- to 24-year-olds have used this drug in their lifetime (Hewitt, Vinje and MacNeil, 1995, p. 32).

Injuries

During 1992, 1,452 out of a total of 4,838 deaths among Canadians under age 20 resulted from injuries (Health Canada, 1997a, p. 2). In simple terms, almost one in three deaths were attributed to injury, as were one in six hospitalizations. The proportion of injuries as a cause of death increased with age (Health Canada, 1997a, p. 14). There has been a slow but steady decrease in injury occurrence during recent years. Injury mortality rates among children under 20 years of age decreased 35% between 1982 and 1991, and the hospitalization rate decreased 13% (Health Canada, 1997a, pp. 22–23). While these trends are encouraging, injuries remain the leading cause of death for Canadian children (Statistics Canada, 1995b, pp. 5–12).

According to national longitudinal and other health survey data, at least 10% of Canadian children are injured each year seriously enough to either seek medical attention or be restricted for a period of time in their daily activities (Health Canada, 1999d). About 1 in every 18 male children and 1 in every 29 female children aged 1 to 4 are hospitalized for injury; in the toddler years, the cumulative risk for injury is about one in five for boys and one in seven for girls (Canadian Red Cross Society, 1994, p. 4). In all age groups, boys have higher death and hospitalization rates than girls; in particular, the mortality rate for boys aged 15 to 19 was nearly three times higher than for girls in 1995 (Statistics Canada, 1995b, pp. 11–12).

Aboriginal children have a much higher injury-related death rate than non-Aboriginal children. The rate for infants is four times the national rate; for pre-schoolers, five times; and for teens, three times (CICH, 1994, p. 143).

Traffic-related injuries are the leading cause of death.

Although the trends have been declining in recent years, motor vehicle crashes remain the leading cause of injury-related deaths among children 1 to 19 years of age and the third leading cause of injury-related deaths among infants under age 1 (Health Canada, 1997a, p. 14). In 1995, 611 Canadian children (birth to 19 years old) died of motor vehicle-related injuries (Mackenzie, 1997, p. 5). Motor vehicle crashes are also an important cause of injuries among children, resulting in 7,489 hospitalizations each year (CIHI, 1998).

Children die as passengers.

In 1995, 309 child passengers died in motor vehicle crashes (Mackenzie, 1997, p. 5). Most victims who suffer motor vehicle-related injuries (fatal and non-fatal) are occupants of a vehicle as opposed to pedestrians or cyclists. The injuries sustained are more serious among children and youth unprotected by a restraint system. Occupant injuries are generally due to ejection from the vehicle or to collision of the occupant with the interior of the vehicle or with another occupant. Periodic surveys indicate that use of seat belts among back seat passengers, most of whom are children, is less than 60%.

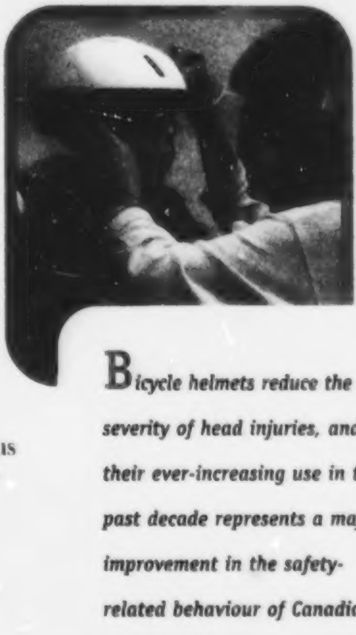
The annual number of injuries increases with each age group, peaking among 15- to 19-year-olds. Young drivers aged 16 to 19 sustain a disproportionate number of injuries. Risk factors for this group include speeding, alcohol use and inexperience in driving itself (Health Canada, 1997a, pp. 82–83).

In 1995, 84 children and youth from birth to age 19 were killed as pedestrians — struck by motor vehicles (Mackenzie, 1997, p. 5). After age 9, the number of pedestrian fatalities is inversely related to a child's age (Health Canada, 1997a, p. 95). Childhood and youth pedestrian injuries represent 37% to 41% of all road vehicle injury-related deaths for those 1 to 4 and 5 to 9 years of age. The proportion falls to 18% for those aged 10 to 14 years (Health Canada, 1997a, p. 94).

Bicycle helmets reduce the risk of injury for cyclists.

Between 1990 and 1992, 96% of bicyclists who suffered fatal injuries were struck by motor vehicles, whereas only 20% of hospitalized bicyclists were involved in collisions with motor vehicles (Health Canada, 1997a, pp. 108–109).

Head injuries are sustained by more than half of hospitalized bicyclists and are the single most serious injury incurred by 30%, with higher rates among younger bicyclists (Health Canada, 1997a, p. 108). Bicycle helmets reduce the severity of head injuries, and their ever-increasing use in the past decade represents a major improvement in the safety-related behaviour of Canadian children and youth (Health Canada, 1997a, p. 113). In rural areas, where the risk of serious and fatal bicycle injury is higher, observed helmet use is lower than in non-rural areas (Health Canada, 1997a, p. 114).



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Drownings are a leading cause of death.

In 1995, there were 113 drownings among those from birth to age 19 (Mackenzie, 1997, p. 5). That year, for children and youth overall, drownings were the third leading cause of injury-related death at 8.2%. One- to four-year-olds appear to be at greatest risk; in this age group, drownings accounted for more than 20% of injury-related deaths, second only to motor vehicle accidents (Health Canada, 1997a, pp. 14, 182). Studies of water-related injuries of children and adolescents aged 5 to 19 indicate many are related to diving, jumping or being pushed with resulting collisions injuring the head, spine and extremities. Many of these injuries have the potential to cause permanent impairment and disability.

Younger children are more at risk during bath time or from falls into water. Older children and youth are more at risk while participating in aquatic and boating activities.

The drowning rate for Aboriginal children is higher than for non-Aboriginal children. For example, the rate for infants is about eight times higher; toddlers, nine times higher; and 5- to 9-year-olds, six times higher (Health Canada, 1997a, p. 185).

Falls cause serious injury.

For those under age 20, falls are not a major cause of death; rather, they produce injuries serious enough for hospitalization. During the period 1990 to 1992, for every fall-related death, there were about 800 hospitalizations. Falls from playground equipment, falls on stairs, falls during sports activities, falls from a chair or bed and falls from a building accounted for 40% of these hospitalizations (Health Canada, 1997a, pp. 136–137).

In the 1 to 4 age group, most falls occur in the home. Data from the 1990–92 period show that infants generally fell off adult beds, change tables, and down stairs, or from high chairs or child seats. Toddlers mostly fell down stairs, tripped while running or playing and fell onto a hard or sharp object, and occasionally fell out a window. Fall-related injuries for 5- to 9-year-olds resulted from falls from bunk beds or during play. Older children fell during play, or off structures upon which they were perched (Health Canada, 1997a, pp. 138–141).

Playground falls are serious for young children.

Between 1992 and 1997, 16 children died after being strangled with drawstrings or loose clothing caught on equipment or fencing, or by skipping ropes that had been tied to playground equipment (Lockhart, 1997, p. 1). The majority of playground injuries are the result of falls. The hospitalization rate for 5- to 9-year-old children following falls from playground equipment was three times higher than for 1- to 4-year-olds and 10- to 14-year-olds (Health Canada, 1997a, p. 198). Almost 42% of playground equipment injuries occurred on public playgrounds, with 33.9% occurring at schools or daycares. The main types of equipment involved were climbers (38.2%), swings (25%) and slides (25%). Fractures from falls were the most common type of injury reported.

Fire-related injuries and burns affect children of all ages.

During the period 1990 to 1992, fire-related injuries and burns were associated with an annual mean of 77 deaths and approximately 1,680 hospitalizations of Canadians under the age of 20. For each child or youth who died, about 23 others were hospitalized. Children under the age of 5 composed the group with the highest number of fire- and burn-related deaths and hospitalizations.

M121

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With the exception of those in the 15- to 19-year-old age group, boys sustained a greater proportion of fire-related injuries and burns (Health Canada, 1997a, p. 146). During this period, residential fires were responsible for 92% of fire-related deaths and 5% of fire-related hospitalizations of Canadians under age 20 (Health Canada, 1997a, p. 149).

The primary source of scalds for children under age 20 is hot liquids. A great many incidents involved hot tap water, particularly during baths. For older children, mishaps with hot beverages and while cooking caused scalds (Health Canada, 1997a, p. 149).

Children are at risk for unintentional poisoning.

During the period 1990 to 1992, poisonings in children and youth under the age of 20 ranked third among all hospitalizations for unintentional injury (Health Canada, 1997a, p. 160). Hospitalization rates for poisonings are much higher among 1- to 4-year-olds than any other age group. These poisonings are mainly attributable to ingestion of medication and biological products. According to a 1995 study of Canadian Poison Control Centres, approximately 100,000 Canadian children and youths under the age of 15 fall victim to poisoning every year (Health Canada, 1997a, p. 161). For those aged 0 to 9, 11% of children poisoned were admitted to hospital, compared with 6.3% for other injuries; the figures for those aged 10 to 19 are 42.6% and 5.2%, respectively (Mackenzie, 1995, p. 5). According to Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP) data, the majority of poisonings (92.4%) occurred in the home, particularly among children aged 4 or younger, for whom the percentage was 97.1% (Health Canada, 1997a, p. 161).

Sexual Activity

Adolescence is a time of experimentation with newly discovered sexuality. Consequently, teenagers are at risk for pregnancy and infection from sexually transmitted diseases (STDs).

Many adolescents do not practise safe sex.

Results of more than 30 studies in Quebec show that between 12% and 23% of students in early high school years have had at least one sexual experience involving vaginal or anal penetration. Researchers estimate that between 47% and 69% of students in late high school years have had at least one sexual experience (Otis, 1995, as cited in Godin and Michaud, 1998, p. 368).

According to a national survey, 17% of sexually active girls aged 12 to 14 did not use birth control; 14% used the pill in combination with a condom (CICH, 1994, p. 77). See **Exhibit 6.9**.

Who Uses Condoms?

Recent studies conducted in Quebec show that adolescents are more likely to use a condom than older Canadians. Characteristics associated with those who are increasingly using condoms are listed below:

- ***male***
- ***from a linguistic group other than Francophone***
- ***lives in a large urban centre***
- ***drinks alcohol and uses drugs less often***
- ***has had fewer sexual partners***

(Otis, 1995, as cited in Godin and Michaud, 1998, p. 369)

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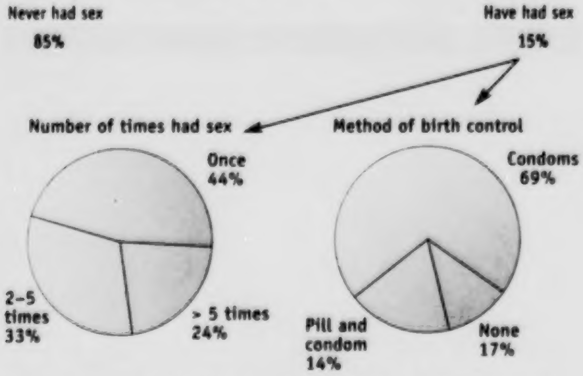
6.9 **Sexual activity and method of birth control among girls aged 12 to 14, Canada, 1992**



Source: Canadian Institute of Child Health (1994). *The Health of Canada's Children: A CICH Profile*, 2nd edition. Ottawa: Canadian Institute of Child Health, p. 77.

It is estimated that more than half of young people (50% to 76%) use a condom the first time they have sex (Otis, 1995, as cited in Godin and Michaud, 1998, p. 369). According to the 1994–95 National Population Health Survey, among sexually active 15- to 19-year-olds, 51% of females and 29% of males reported having had sex without a condom in the previous year (Galambos and Tilton-Weaver, 1998, p. 13). Less than one in five sexually active girls report using the pill and condom combination as a method of birth control (Insight Canada Research, 1992, p. 8).

HIV, AIDS and STDs are a risk for teens.

Epidemiological information regarding HIV shows that the median age of people with AIDS has decreased from 32 years of age (before 1982) to 23 years of age (between 1985 and 1990). This indicates that many people are becoming infected as teenagers (Health Canada, 1995f).

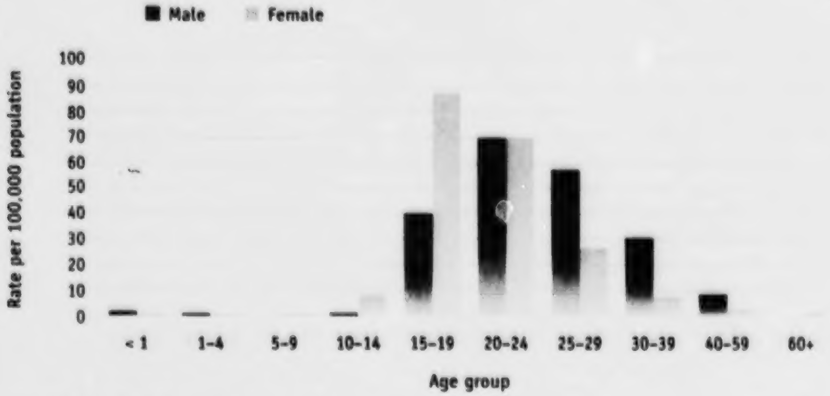
Despite the fact that the number of reported cases as well as the incidence rates for some STDs have been falling, STDs are important contributing factors to morbidity among Canadian men and women (Health Canada, 1998e). Rates for both chlamydia and gonorrhea are well above average for young women (aged 15 to 19 years) (Health Canada, 1998f). See **Exhibit 6.10** and **Exhibit 6.11**.

Between 1988 and 1995, 559 children in Canada were known to have been exposed perinatally to HIV. Women in their childbearing years represent an increasing proportion of people infected with HIV. The transmission from mothers to babies creates serious implications for both the woman and child (Goldie et al., 1997).

Paediatric AIDS

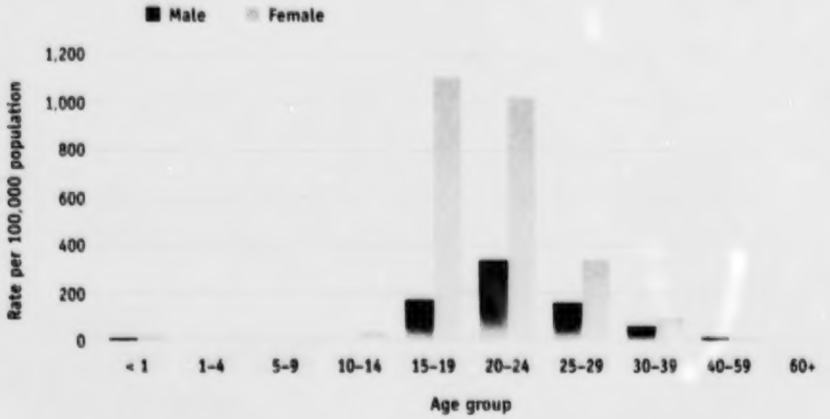
Since 1988, a total of 131 AIDS cases have been reported in Canada for children aged 0 to 14. Perinatal transmission is the most common form of HIV transmission in children. Encouragingly, the number of new cases reported each year is declining: in 1997, there were just five new cases — half the number reported in 1996, and down from 24 in 1995 (Health Canada, 1998d, pp. 22, 26).

6.10 Reported gonorrhea: incidence per 100,000 by age and sex, Canada, 1995



Source: Health Canada Web site: http://www.hc-sc.gc.ca

6.11 Reported genital chlamydia: incidence per 100,000 by age and sex, Canada, 1995



Source: Health Canada Web site: http://www.hc-sc.gc.ca

Teen Pregnancy

In 1994, there were an estimated 46,800 pregnancies among 15- to 19-year-olds — marking the continuation of an almost steady rise from 1987, when 39,300 teen pregnancies were recorded. There has also been an increase in the number of teenage pregnancies that end in abortion (Wadhera and Millar, 1997, pp. 11–12). See Exhibit 6.12.

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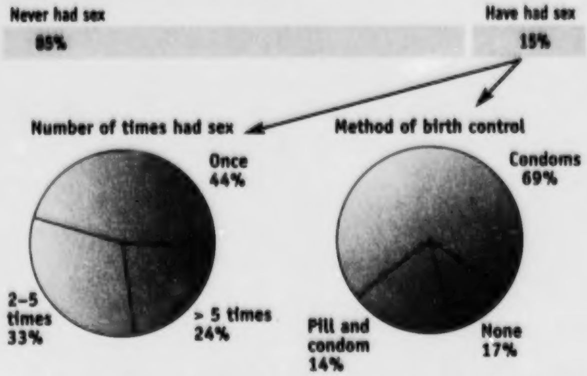

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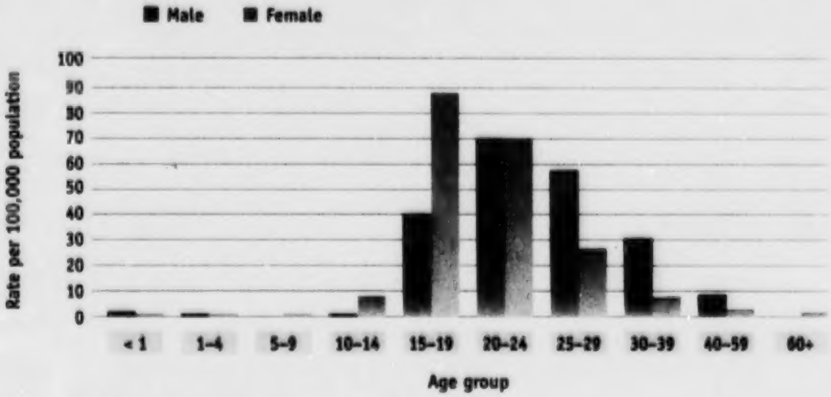

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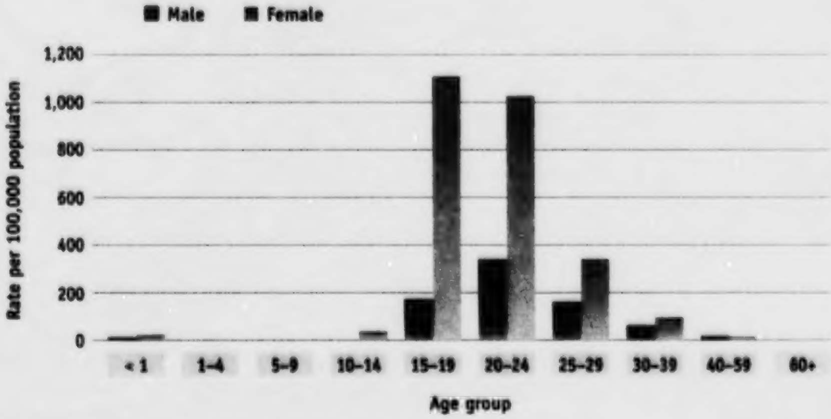

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6.12 **Distribution of outcomes of teenage pregnancy, by selected age groups, Canada, 1974 and 1994**

Age group	Year	Outcome (distribution) Live birth	Abortion	Miscarriage/ Stillbirth
Total				
15–19	1974	66.3	25.8	7.9
	1994	50.7	45.0	4.3
15–17	1974	58.3	34.2	7.5
	1994	46.1	49.5	4.4
18–19	1974	71.2	20.7	8.1
	1994	53.4	42.4	4.2

Source: Adapted from S. Wadhera and W.J. Millar (1997). "Teenage Pregnancies, 1974 to 1994." *Health Reports*, Vol. 9, No. 3 (Winter 1997): 9–16. Catalogue No. 82-003-XPB. Ottawa: Statistics Canada, p. 11.

Personal Health Practices and Other Determinants

Income and Education

Lower socio-economic status is associated with higher rates of injury, and with more severe and often fatal injury (Rivara and Mueller, 1987). For example, in 1991, the rate of injury-related deaths for the poorest children and youth was 40% higher than the rate for the wealthiest children and youth (Health Canada, 1997a, p. 53).

Income is also associated with various health behaviours and negative health outcomes. For instance, low income and smoking during pregnancy are two of the factors associated with an increased incidence of low birthweight (Ross, Scott and Kelly, 1996, p. 21). See **Exhibit 6.13**. Teen pregnancy is almost five times more common in the lowest income neighbourhoods than in the highest income neighbourhoods (Health Canada, 1999c, p. 4).

Education also plays a role, influencing decisions about sexual behaviour. For example, young people who have high investment in their education are more likely to use contraception (Health Canada 1999c, p. 12).

Natural and Built Environments

Environmental tobacco smoke is an important source of indoor air pollution. Infants and young children whose parents smoke in their presence are more susceptible than others to a number of health risks including respiratory infections and asthma. Almost two-fifths of children under the age of 6 live with one or more people who smoke (Health Canada, 1997b).

6.13 Distribution of children aged 0 to 3 years by birthweight, household income and mother's smoking during pregnancy, Canada, 1994–95

	Normal birthweight (> 2,500 g) (%)	Low birthweight (< 2,500 g) (%)
Family income[a]		
< $30,000	93.5	6.5
$30,000–$60,000	93.7	6.3
> $60,000	95.8	4.2
Smoking during pregnancy[b]		
Smoked	92.2	7.8[c]
Did not smoke	94.8	5.2

a. Distribution of children aged 0 to 3 years by family income.

b. Distribution of children aged 0 to 2 years by mother's smoking during pregnancy.

c. Estimate less reliable due to high sampling variability.

Source: Adapted from D.P. Ross, K. Scott and M.A. Kelly (1996). "Overview: Children in Canada in the 1990s." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 21.

Individual Capacity and Coping Skills

Personal capacities such as coping skills and sense of control are key contributors to sexual and reproductive health. Young people who have a good sense of their own worth and strong coping skills are likely to make more sound decisions about sex. At the same time, supportive social environments are necessary to enable and sustain healthy choices (Health Canada, 1999c, pp. 12–13).

Culture

The prevalence of smoking is high among Inuit and Francophone women and low among most immigrant women (Maritime Centre of Excellence for Women's Health, 1997). With respect to alcohol consumption, alcoholism is virtually unheard of as a social or medical problem in Chinese society (Lin T.-y., 1983, p. 864) and has been noted as more prevalent among the Irish than the Jewish (Henderson and Primeaux, 1981, p. xix).

Supportive social environments are necessary to enable and sustain healthy choices.

Gender

Young women are more likely to engage in disordered eating behaviours than young men. Among boys and young men, low self-esteem has been linked with the use of anabolic steroids (WHO, 1999).

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Chapter

7

Individual Capacity and Coping Skills

Overview

Individual capacity and coping skills include psychological characteristics such as personal competence and a sense of control and mastery over one's life. These characteristics play an important role in supporting mental and physical health — influencing people's vulnerability to such health problems as cancer and cardiovascular disease, and affecting their risk of unintentional injuries, mental disorders and suicide.

Coping skills enable people to be self-reliant, solve problems and make informed choices that enhance health. They help people to deal with the events, challenges and stresses in their day-to-day lives, without resorting to health risk-taking behaviours such as alcohol and drug abuse. People with a strong sense of their own effectiveness and ability to cope with the circumstances in their lives are likely to be most successful in adopting and sustaining healthy behaviours and lifestyles.

There is strong evidence that coping skills are acquired primarily in the first few years of life. Children are born with an innate ability to cope, meaning that they are resilient to stress and negative circumstances. However, this ability is profoundly influenced by early childhood experiences. Developing these skills to their fullest potential depends on a variety of protective and risk factors in the individual, family and community. Factors such as gender, temperament, parenting styles and family functioning, interaction with peers and significant adults, and the nature of community support interact to hinder or enhance children's mental health outcomes.

Relationship to Healthy Child Development

Early nurturing is important.

Children's early experiences contribute significantly to their ability to cope with stress. Effective parenting, which includes providing children with emotional security and strong and sensitive nurturing, is essential if children are to learn the coping skills they will need throughout their lives (Steinhauer, 1998). In the period from birth through the toddler years, it is likely that the strongest single familial factor protecting the potential for resiliency is the establishment of a secure attachment to a primary caregiver (Steinhauer, 1998, p. 57).

Findings of the National Longitudinal Survey of Children and Youth (NLSCY) support the theory that effective parenting skills and family functioning are important to young children's mental health. When parents have difficulty coping with life, work, family or parenting, they may be unable to provide their children with the necessary emotional, social and physical support (CCSD, 1996, p. 16; Landy and Tam, 1996).

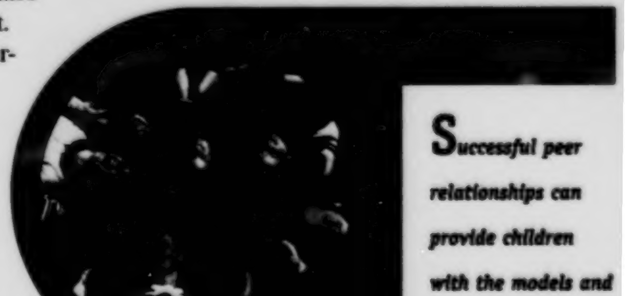
Consistency in parenting is especially important for building social relationships for children in at-risk families (McKinnon and Ahola-Sidaway, 1997, pp. 38–39).

Ongoing support and stimulation from family, peers and significant others contribute to positive mental health.

Establishing trust and safety through caring relationships, providing guidance and challenge, and ensuring opportunities for meaningful participation in family and community are all protective factors in a child's environment. These factors can alter or even reverse negative outcomes and help children to develop resilience and positive coping skills (Benard, 1991).

Adults outside the immediate family also influence children's healthy development. Supportive adults in the school, neighbourhood and community are important protective factors in helping to offset the negative effects of perinatal stress, chronic poverty, parental psychopathology and disruptions in the family (Werner, 1993).

Peers become an important source of support as children grow older. Successful peer relationships can provide children with the models and experience that help them develop coping mechanisms to counteract excessive anxiety (Manassis and Bradley, 1994). Conversely, peers can play a negative role by encouraging participation in high-risk behaviours (e.g. drinking and driving, drug experimentation) that may have long-term negative health and other consequences.



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Stimulation and challenge are essential to healthy child development. As they move through the stages of childhood and adolescence, children require a certain amount of stress and risk taking. Achieving despite obstacles, competition, and coping with traumatic life events such as death or divorce can help children adapt and develop (McKinnon and Ahola-Sidaway, 1997, p. 44).

Physical and mental well-being are related.

How well people cope with the challenges in their living and working environments appears to be an important influence on their vulnerability to health problems. Although the exact pathways and mechanisms are not yet clear, there is strong evidence of a link between the central nervous system and the immune system (Dantzer and Kelly, 1998). Responding poorly to challenges can lead to persistently elevated steroid levels, which depress the host defence system and other body functions; this increases vulnerability to negative health outcomes (Keating and Mustard, 1996, p. 9).

Recent observations have created a better understanding of the mind-body relationship and of how the development of competence and coping skills in early life can influence a wide variety of causes of death in adult life (Keating and Mustard, 1996, pp. 8–9).

Children are born with innate resilience.

All children have the innate capacity for "self-righting," meaning that they can develop traits such as social competence, effective problem solving, autonomy and a sense of purpose and belief in a positive future. In fact, long-term studies show that 50% to 70% of children born into high-risk conditions (e.g. abusive families, war-torn communities) develop social competence and lead successful lives (Benard, 1996).

This in-born resilience to stress is not static; it varies over time as an individual's circumstances change. The level of resiliency depends on many environmental factors and requires support both internally and externally in order to contribute to healthy human development (Benard, 1991).

Resilience and Teens

Resilience has been defined as "... the process of healthy human development — a dynamic process in which personality and environmental influences interact in a reciprocal, transactional relationship" (Benard, 1996, p. 9).

Adolescents who overcome adversity, manifesting resilience despite the odds against them, typically have access to three sources of "protection": a cohesive and stable family, external support, and certain personal resources (Garmezy, 1983). The latter includes the following: personality assets such as self-esteem and autonomy; intellectual skills such as problem-solving abilities; social skills such as cooperation, social engagement and responsiveness; a sense of self-efficacy; and an easygoing temperament (Garmezy, 1983; Rutter, 1987).

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Other factors affect capacity and coping skills.

Culture and ethnicity can also affect people's social and economic well-being, which in turn can impact their physical and mental health. For example, members of cultural and ethnic minorities may experience harassment in school or in the workplace; language differences can isolate parents and children; prejudice may deny people educational and employment opportunities, or access to housing; misunderstandings based on cultural or linguistic differences can interfere with access to social services and other benefits, and these people may feel cut off or isolated from the community (Health Canada, 1996, p. 19).

Coping mechanisms can be positive or negative.

Well-being, or positive health, consists of those physical, mental and social attributes that permit an individual to cope successfully with the challenges to their health and functioning. People use a variety of coping mechanisms to meet life's challenges; some contribute to health and equilibrium, while others place the individual at even greater risk of negative health.

For example, physical activity contributes to physical and mental health: in addition to being more physically fit, active people tend to have greater self-esteem and a positive body image (Health Canada, 1999). Similarly, hobbies such as music and art provide a positive outlet for stress and teach children practical skills for coping.

Negative coping mechanisms include smoking and drug and alcohol use. An early reliance on these behaviours often persists into adulthood and may result in associated health problems.

Conditions and Trends

Children's lives can be stressful. They experience rapid physical, emotional and mental change and must face the challenges of academic requirements, peer relationships and entry into the work force. While most gain the necessary skills and tools for coping, some experience a range of mental disorders that may affect them well into their adult lives.

Mental Disorders

Most Canadian children are free of psychiatric disorders. Yet, research in this field suggests that between 17% and 22% of Canadian children and adolescents suffer from one or more psychiatric disorders (Davidson and Manion, 1996, p. 42). A survey of Ontario youth revealed that 25% of youth aged 15 to 24 reported having a mental health disorder (Ontario Ministry of Health, 1994, p. 10).

Children are at risk of a range of mental disorders.

The onset of some psychiatric disorders in children may generate later negative psychosocial outcomes. For example, research suggests that children with conduct disorder or antisocial behaviour may have increased tendencies towards criminal and substance abuse behaviours and psychological difficulties in adolescence and adulthood (Offord, Boyle and Racine, et al., 1992; Offord and Bennett, 1994).

Attention deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD) appear to be most prevalent during preschool and early elementary years (Loeber and Keenan, 1994). These conditions, along with learning disorders, can compromise social development as a result of learning problems at school and difficulties in interpersonal relations (McKinnon and Ahola-Sidaway, 1997).

Gender plays a role.

There are significant gender and age differences in children's emotional and behavioural disorders. According to the NLSCY, in 1994–95, the highest rate of emotional and behavioural problems was among boys aged 8 to 11 (26%) and the lowest was among girls aged 4 to 7 (16%). Among boys of both age groups, hyperactivity was the most common disorder, followed by conduct disorder. The incidence of emotional disorders increased significantly from younger to older boys (from 6.1% to 11.8%). In girls, conduct disorder was more common than hyperactivity for both age groups, but the occurrence of emotional disorder was most prevalent among 8- to 11-year-olds (11.3%). All prevalence rates of disorders were higher for boys than for girls (Offord and Lipman, 1996, p. 123). See **Exhibit 7.1**.

7.1 Frequency of emotional and behavioural problems among 4- to 11-year-olds, by age and sex, Canada, 1994–95

	Emotional and behavioural problems						
	A. Conduct disorder (%)	B. Hyper-activity (%)	C. Emotional disorder (%)	D. One or more disorders (%)	E. Repeated a grade[a] (%)	F. Impairment in social relationships (%)	G. One or more problems[a] (E. or F.) (%)
Boys							
4–7	10.6	14.0	6.1	21.9	2.9	2.7	27.4
8–11	11.3	14.0	11.8	26.0	8.1	4.2	31.0
4–11	11.0	14.0	9.0	24.0	6.5	3.5	29.9
Girls							
4–7	8.3	6.1	5.8	16.0	2.1	1.5	19.1
8–11	8.2	6.7	11.3	18.8	5.8	2.9	24.0
4–11	8.3	6.4	8.6	17.4	4.6	2.3	22.4
Boys and girls							
4–7	9.5	10.2	6.0	19.0	2.5	2.1	23.3
8–11	9.8	10.4	11.6	22.4	6.9	3.6	27.5
4–11	9.6	10.3	8.8	20.7	5.6	2.9	26.2

a. Data available for 6- to 11-year-olds only.

Source: Adapted from D.R. Offord and E.L. Lipman (1996). "Emotional and Behavioural Problems." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 123.

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Boys							
4–7	10.6	14.0	6.1	21.9	2.9	2.7	27.4
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4–7	8.3	6.1	5.8	16.0	2.1	1.5	19.1
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4–11	8.3	6.4	8.6	17.4	4.6	2.3	22.4
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8–11	9.8	10.4	11.6	22.4	6.9	3.6	27.5
4–11	9.6	10.3	8.8	20.7	5.6	2.9	26.2

a. Data available for 6- to 11-year-olds only.

Source: Adapted from D.R. Offord and E.L. Lipman (1996). "Emotional and Behavioural Problems." In *Growing Up in Canada: National Longitudinal Survey of Children and Youth*. Catalogue No. 89-550-MPE, No. 1. Ottawa: Human Resources Development Canada and Statistics Canada, p. 123.

Females are much more likely than males to experience "internalized disorders." For example, young women aged 15 to 19 are the most likely of any age-sex group to exhibit symptoms of depression (14%); women aged 20 to 24 are also well above average (10%) in their experience of depression (Federal, Provincial and Territorial Advisory Committee on Population Health, 1996, p. 317).

Other factors affect mental health.

Environment also appears to influence behavioural problems. In Ontario, the rates of all psychiatric disorders were higher for children living in an urban environment (16.7%) than for those living in rural areas (12.3%) (Offord, Boyle and Racine, 1989, p. 4).

A shortage of mental health services is a problem in many areas of Canada. It is estimated that only one in six Canadian children with mental health problems is reached by mental health services (Children's Hospital of Eastern Ontario, 1993).

Stress

Adolescence can be a time of high stress. The rapid physiological changes of puberty interact with other stress factors, with potentially significant effects on the mental health of adolescents.

Sources of Stress

Many children have experienced events that cause anxiety and worry. Findings of the NLSCY show that, according to the parents surveyed, roughly one third of the children under age 12 had experienced great unhappiness. The most common causes cited, regardless of the age or sex of the child, are listed below:

- *death in the family — 27%*
- *parents' divorce or separation — 25%*
- *family move — 8%*
- *family member's illness or injury — 8%*
- *child's illness or injury — 6%*
- *conflict between parents — 6%*
- *hospital stay — 5%*
- *abuse or fear of abuse — 4%*
- *change in household members — 4%*
- *separation from parents, excluding divorce — 4%*
- *death of a parent — 3%*
- *alcoholism or mental health disorder in the family — 2%*
- *a stay in a foster home — 1%*
- *other — 29%*

(CCSD, 1997, p. 38).

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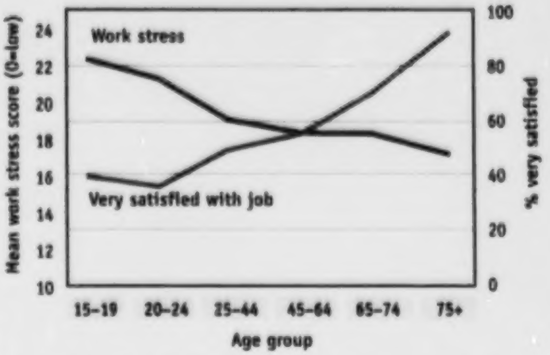
- ***hospital stay — 9%***
- ***abuse or fear of abuse — 4%***
- ***change in household members — 4%***
- ***separation from parents, excluding divorce — 4%***
- ***death of a parent — 3%***
- ***alcoholism or mental health disorder in the family — 2%***
- ***a stay in a foster home — 1%***
- ***other — 19%***

(CCSD, 1997, p. 28).

Young people can experience a high degree of social, academic and work stress.

School was cited as the greatest source of stress by 65% of youth respondents to the 1992 Canadian Mental Health Survey, a joint effort of the Canadian Psychiatric Association and Canadian Mental Health Association (Canadian Psychiatric Association, 1993, p. 15). Adolescents and young adults also experience higher levels of work stress than do older workers, with work stress and job satisfaction being inversely related. Youth aged 15 to 24 are the least likely to indicate that they are "very satisfied" with their job (Federal, Provincial and Territorial Advisory Committee on Population Health, 1996, p. 242). Work stress is highest among employed teens and declines with age, reaching its lowest level among employed seniors (Federal, Provincial and Territorial Advisory Committee on Population Health, 1996, p. 314). See **Exhibit 7.2.**

7.2 **Work stress and job satisfaction of employed persons age 15+, by age, Canada, 1994–95**



Source: Federal, Provincial and Territorial Advisory Committee on Population Health (1996). *Report on the Health of Canadians: Technical Appendix.* Catalogue No. H39-385/1-1996E. Ottawa: Health Canada, p. 315.

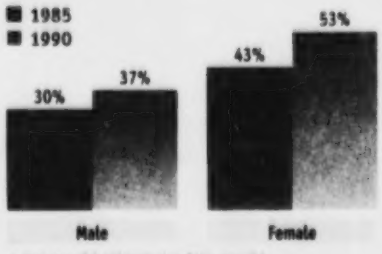
Changes in family structure cause stress.

Death and family break-up can also be sources of stress for children. Data from the NLSCY reveal that, based on parents' reports, roughly 33% of the children under age 12 had experienced "great unhappiness." The most common causes, regardless of the age or sex of the child, were death in the family (27%) and parents' divorce or separation (25%) (CCSD, 1997, p. 38).

Males and females are different.

There is evidence that males and females experience stress differently during adolescence. Adolescent females are less likely to feel good about themselves and more likely to perceive their lives as stressful than adolescent males (CICH, 1994, p. 96). See **Exhibit 7.3.**

7.3 **Perceived level of stress,ᵃ of 15- to 19-year-olds, by sex, Canada, 1985 and 1990**



a. Very stressful and somewhat/fairly stressful.

Source: Canadian Institute of Child Health (1994). *The Health of Canada's Children: A CICH Profile,* 2nd edition. Ottawa: CICH, p. 96.

Suicide

Young people are at increased risk for suicide.

From 1970 to 1992, there was a steady and significant increase in the suicide rate for 15- to 19-year-olds, from a low of 7 per 100,000 population to a peak of 14 per 100,000 in 1983. The rate of 13 per 100,000 in 1992 was almost twice that of 1970.

Youth between the ages of 20 and 24 have a higher rate of suicide than 15- to 19-year-olds, but they have not experienced the same increases as the younger cohort. The rate for the former group has remained at 18 per 100,000 since 1989 (Federal, Provincial and Territorial Advisory Committee on Population Health, 1996, p. 328). See **Exhibit 7.4**.

7.4 Numbers and rates of suicide, by age and sex, and by province/territory, Canada, 1992

	Suicides	
	Number	Rate (per 100,000 population)
Canada, all ages	3,709	13
Male	2,923	21
Female	786	5
Age, total	34	1
Male	26	1
Female	8	0
Age 5–19, total	249	13
Male	198	20
Female	51	5
Age 20–24, total	374	18
Male	306	29
Female	68	7

Source: Federal, Provincial and Territorial Advisory Committee on Population Health (1996). *Report on the Health of Canadians: Technical Appendix*. Catalogue No. H39-385/1-1996E. Ottawa: Health Canada, p. 330.

There are limited data on the incidence of suicide among younger children. Suicides among children aged 0 to 9 are rarely recorded. For males aged 10 to 14, the rate rose from 0.6 to 2.6 per 100,000 between 1960 and 1992; for females, the increase was much less significant, rising from 0.1 to just 0.8 during the same period (Health Canada, 1994).

Rates for attempted suicide vary greatly. It has been estimated that for every suicide there are between 10 and 100 attempted suicides (Dyck, Mishara and White, 1998, p. 311).

More teenage males than females die from suicide attempts.

While young women are more likely to attempt suicide, young men are much more likely than women to complete a suicide attempt (CICH, 1994, pp. 75, 89). The leading cause of hospitalization for females 15 to 19 years old is suicide attempts — in 1989–90, their rate of hospitalization was more than twice that of males the same age (295 per 100,000 compared with 127 per 100,000) (CICH, 1994, p. 93).

Suicide rates are higher among Aboriginal youth.

Aboriginal youth are at a higher risk of suicide than are young people in the general population. The suicide rate for Status Indians (aged 0 to 19) is almost five times higher than the national average (Health Canada, 1997, p. 55).

Suicide

Young people are at increased risk for suicide.

From 1970 to 1992, there was a steady and significant increase in the suicide rate for 15- to 19-year-olds, from a low of 7 per 100,000 population to a peak of 14 per 100,000 in 1983. The rate of 13 per 100,000 in 1992 was almost twice that of 1970.

Youth between the ages of 20 and 24 have a higher rate of suicide than 15- to 19-year-olds, but they have not experienced the same increases as the younger cohort. The rate for the former group has remained at 18 per 100,000 since 1989 (Federal, Provincial and Territorial Advisory Committee on Population Health, 1996, p. 328). See **Exhibit 7.4**.

There are limited data on the incidence of suicide among younger children. Suicides among children aged 0 to 9 are rarely recorded. For males aged 10 to 14, the rate rose from 0.6 to 2.6 per 100,000 between 1960 and 1992; for females, the increase was much less significant, rising from 0.1 to just 0.8 during the same period (Health Canada, 1994).

7.4 Numbers and rates of suicide, by age and sex, and by province/territory, Canada, 1992

	Suicides	
	Number	Rate (per 100,000 population)
Canada, all ages	3,709	13
Male	2,923	21
Female	786	5
Age, total	34	1
Male	26	1
Female	8	0
Age 5–19, total	249	13
Male	198	20
Female	51	5
Age 20–24, total	374	18
Male	306	29
Female	68	7

Source: Federal, Provincial and Territorial Advisory Committee on Population Health (1996). *Report on the Health of Canadians: Technical Appendix*. Catalogue No. H39-385/1-1996E. Ottawa: Health Canada, p. 330.

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Capacity, Coping and Other Determinants

Income

Evidence is mounting that it is both the combined effects of multiple environmental stresses and the clustered effects of psychosocial deprivations that often coexist with poverty (particularly maternal depression, parental substance abuse, parental violence and paternal criminality) that undermine competence and resiliency, rather than just low income (Steinhauer, 1998).

Youth from families that receive family benefits are less likely to feel good about themselves than youth from families that do not receive such benefits. In Ontario, young people between the ages of 12 and 19 whose families receive benefits were less likely to rate themselves as happy (Ontario Health Survey analysis in CICH, 1994, p. 125).

Social Environment

Spousal abuse may affect children's mental health. Children who witness familial violence are at risk for many emotional and behavioural problems. These difficulties may include anxiety, depression, peer conflicts, non-compliance and, in extreme cases, post-traumatic stress disorder (Suderman and Jaffe, 1997).

Genetic and Biological Factors

Research suggests that children who experience chronic illness or functional disability are at higher risk of mental health problems (Cadman et al., 1986).

Gender

The results of the NLSCY show that in 1994–95 the highest rate of emotional and behavioural problems was among boys aged 8 to 11 and the lowest was among girls aged 4 to 7. In fact, all prevalence rates for disorders were higher for boys (CICH, 1994, pp. 75, 89).

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Chapter

8

Genetic and Biological Factors

Overview

The basic biology and the dynamic, organic nature of the human body are fundamental determinants of health. These scientific perspectives focus on the genetic endowment of an individual, the functioning of the various body systems and the processes of development and maturation.

Genetic endowment represents the inherited variations in DNA that form the building blocks of the body. Our genetic background can predispose us to develop inherited disorders or conditions (e.g. Tay Saks disease, autism) and can influence resistance to diseases and promote general healthiness. Once an embryo has been conceived, its genetic endowment cannot be changed.

Biological risk factors can be either innate (e.g. Down syndrome) or acquired (e.g. brain damage from a severe head injury). Innate conditions can be caused by chromosomal abnormalities which are not preventable, while acquired conditions may result from teratogenic influences during pregnancy or biological changes during and after birth. These biological factors may be permanent or may be modified by the environment or by the processes of maturation. For example, once treated with medication, children suffering from attention deficit disorder (ADD) may often be able to function normally and would not be considered as having a disability.

Teratogenic effects are caused by outside agents such as alcohol, medications or other chemical or biological agents that influence the growth and development of the embryo or fetus. Examples of teratogenic effects are the birth defects seen in infants born to mothers who, during pregnancy, were infected with rubella, drank alcohol excessively, or took thalidomide.

The biological processes of body system functioning and of development and maturation can be influenced both positively and negatively by other determinants of health such as personal health practices, the physical and social environments, education, and economic and social status.

These risk factors influence child development in a variety of direct and indirect ways, interacting with environments that also affect health. Many of these biological/genetic risk factors also respond to interventions that can minimize their impact and effects. For example, programs that promote healthy child development or remedial programs that help children get ready for school can minimize the impact of biological risk factors related to cognitive development.

With advances in medical science, opportunities for significant new biomedical tests and treatments that can identify, prevent and treat conditions are anticipated. Medical breakthroughs that will extend the life span of persons with disabilities combined with the reality of an aging population of people with disabilities will signal changes in two areas: an increased demand for specialized clinical and social services to meet the needs of this population at all stages of life and greater recognition of the rights of persons with disabilities.

Relationship to Healthy Child Development

Broadly defined, biological risk factors are those innate or acquired characteristics of the child that place a child at risk of poor health. These factors can affect healthy child development at several levels: from the simple biological fact of the sex of the child, to genetic variants that are relatively common, such as those associated with attention deficit disorder, to brain damage, which can result from any number of causes, such as severe head injury.

It is impossible to talk of nature and nurture as separate entities with respect to child development. Risk factors are not independent variables operating in a vacuum but may interact synergistically or in an additive fashion (Szatmari et al., 1994). Some environmental risk factors may lead to biological outcomes that put children at risk for ill health. For example, lead in the environment can result in lead poisoning which in turn is a risk factor for low IQ, learning disabilities and attention deficit disorders; unemployment and cultural displacement may lead to alcohol abuse which, for a pregnant woman, may translate later into fetal alcohol syndrome for her child. Fetal alcohol syndrome has been associated with learning problems, poor growth and disruptive behaviours.

Biological/genetic risk factors may steer children towards certain environments (e.g. special schools, delinquent peers, detention centres) that place them at further risk of poor health broadly defined. These causal chains are multifaceted, dynamic and complex. As such, intervening anywhere in the chain may have dramatic effects on several levels of health outcomes.

The interaction of biological/genetic factors within the environment is dynamic — constantly changing over time. Interventions aimed specifically at changing the genetic endowment of a child are difficult to implement and few options are available. More potential exists for preventing teratogenic effects and other health-related outcomes from physiological and biological risk factors. Also, interventions aimed at finding and designing environments that promote optimal development are well-known and can be put in place if appropriate resources are available. Early intervention for children at risk or with developmental delays or autism are well-known examples (Zoritch, Roberts and Oakley, 1998; Rogers, 1998).

Types of Biological and Genetic Risk Factors

The following are some examples of biological and genetic risk factors. The list is not meant to be exhaustive but rather to illustrate the broad range of risk factors in this domain that affect child development.

Genetic and chromosomal syndromes

There are many examples of genetic and chromosomal syndromes including Down syndrome, fragile X syndrome, and tuberous sclerosis. Individually, these disorders may be rare, but there are many single-gene disorders and chromosomal abnormalities that affect the brain. Collectively, these conditions carry a very heavy burden of suffering (Costa, Scriver and Childs, 1985).

Many of these conditions are associated with severe learning disabilities and several syndromes are characterized by specific behaviours that may place a child at risk of further health problems (Dykens, 1996). For example, Lesch-Nyhan syndrome is a genetic disorder characterized by self-mutilation (Nyhan, 1997). This can lead to many other health problems both physically and emotionally, not only for the child, but also for the entire family.

Drug abuse during pregnancy

More and more substances are being identified as potentially having a harmful effect on the developing fetus. These include low doses of alcohol, tobacco and illegal and prescription drugs (Mattson and Riley, 1998; Singer, Garber and Kliegman, 1991; Slotkin, 1998). These drugs can affect physical as well as cognitive development (Singer et al., 1997), however the effects on learning and behaviour may not be evident for many years. Fetal alcohol syndrome is a particular problem among those living in severe low-income circumstances (Abel and Skol, 1987; Sampson et al., 1997).

External influences on brain development

There is now accumulating evidence that stress during pregnancy as well as maternal and early infant nutrition can affect the development of the fetal and infant brain. For example, animal models suggest that stress during pregnancy can affect the intrauterine hormonal environment which may then place the infant at later risk of depression (Schneider et al., 1998; Sandman et al., 1997; Anisman et al., 1998). Animal models also show that a stressful intrauterine environment can affect nerve connections in the brain and the architecture of brain development (Hayashi et al., 1998). The effects of early malnutrition on learning and cognition are well known (Richards et al., 1998; Morgan, 1990).

"Women need more folate, a B vitamin, during pregnancy to support their expanding blood volume and the growth of maternal and fetal tissues, and to decrease the risk to the fetus of neural tube defects (NTDs)" (Health Canada, 1999, p. 28). "NTDs result from the improper development and closure of the neural tube during the third and fourth week of gestation. Pregnancies affected by an NTD may result in a miscarriage or stillbirth, and children born with an NTD may have mild to severe disability or die in early childhood. NTDs include spina bifida, anencephaly and encephalocele" (Health Canada, 1999, p. 28). There is evidence that increasing folate intake during the peri-conceptual period via a daily supplement containing folic acid (a form of folate found in supplements) and a healthy eating pattern can reduce the risk of NTDs (Health Canada, 1999, p. 29).

"It is important that pregnant and nursing women consume adequate amounts of essential fatty acids (EFAs), linoleic acid and alpha-linoleic acid in their daily eating patterns for proper fetal neural and visual development" (Health Canada, 1999, p. 35). The fetus and infant are dependent on the mother to supply sufficient EFAs for their healthy development, especially during periods of rapid growth such as the last trimester of pregnancy and the first months of postnatal life (Health Canada, 1999, p. 35).

Prematurity

Premature births are defined as births occurring before 36 weeks gestation. With significant advances in perinatal care, more premature babies are surviving than ever before (Saigal et al., 1989; Roth et al., 1996; Lorenz et al., 1998). Newborns that weigh less than one kilogram now regularly "graduate" from neonatal intensive care units (Lorenz et al., 1998). Most of these children do very well and have minimal disabilities (Saigal et al., 1990; Lorenz et al., 1998). However, some have very special needs in terms of learning problems, physical disabilities, sensory deficits and attention deficit (Saigal et al., 1991a, 1991b; Szatmari et al., 1990). For this reason, many graduates of neonatal intensive care units require follow up and long-term care.

Sex

It is well known that boys may be at greater risk than girls for the development of several developmental disorders, such as autism (Bryson, Clark and Smith, 1988) and certain types of behavioural conditions as well, such as attention deficit and conduct disorder (Offord, 1987). The mechanism for this gender-based predisposition to these conditions is not well understood as little research has been carried out on the links between sex, other related biological risk factors and the environment. While some work has shown that boys have a greater vulnerability to brain dysfunction than girls (Waugh et al., 1996), more research is needed to fully understand the interplay of biological sex and social roles related to gender.

On the other hand, girls are at much greater risk of developing depression and eating disorders in adolescence, particularly after 13 to 15 years of age (Cicchetti and Toth, 1998). The mechanism for this is probably multifactorial and involves hormonal factors during puberty as well as experiences in socialization and gender roles unique to adolescent girls. More research is needed to understand the complex interplay between biology and gender and healthy child development.

Girls are at much greater risk of developing depression and eating disorders in adolescence, particularly after 13 to 15 years of age.

Acute and chronic medical illnesses

Medical illnesses place children at risk of further health difficulties in terms of emotional and behavioural problems (Cadman et al., 1987; Stein, Westbrook and Silver, 1998). Even diseases such as cystic fibrosis, diabetes and childhood cancers that do not affect the brain are associated with an increased risk of emotional and behavioural problems (Thompson et al., 1998; Kovacs et al., 1997; Dunitz et al., 1991). These problems are often a secondary consequence of the functional limitations and social isolation associated with the illness (Cadman et al., 1986). The illness may also affect the child's ability to attend school and so have an effect on educational outcomes in the long term (Gortmaker et al., 1990).

Acute and chronic conditions of the brain and nervous system

Examples of conditions that affect the developing brain include cerebral palsy, head injuries, neural tube defects, and meningitis. These disorders carry a high risk of secondary problems pertaining to adaptation and everyday living (Rutter, Graham and Yule, 1970; Breslau, 1990). Some of these conditions also affect the person's ability to speak, think, perceive and learn, which, in turn, may affect opportunities for achieving school success and securing long-term employment. Disorders of the central nervous system may also marginalize the child and lead to social stigmatization that further impairs health.

Developmental Disabilities

These disorders have a biological basis with strong genetic causes. Mental retardation and pervasive developmental disorders (PDDs), such as autism and specific learning disabilities, fall into this category. In general, these disorders are characterized by delayed acquisition of certain skills and an uneven pattern of development. Mental retardation refers to a general delay in the acquisition of cognitive skills in a variety of abilities and a lower than expected level of adaptation. The pervasive developmental disorders are characterized by impairments in social interaction, communication and play, and are associated with a very high burden of suffering.

Both mental retardation and PDDs are more common in boys (Bryson, Clark and Smith, 1988), but reading disabilities are found equally among boys and girls (Shaywitz et al., 1992). There is currently no cure for these developmental disorders, although treatments are available that improve functioning (Rogers, 1998; Lovett, Ransby and Barron, 1988).

Attention deficit disorder (ADD) and attention-deficit hyperactivity disorder (ADHD)

These disorders first become apparent in the toddler years and are characterized by overactivity, impulsivity and difficulty in information processing. Both maladies often persist into adolescence or even adulthood (Hechtman, 1991). Although the causes of ADHD and ADD are not known,it is clear that genetic factors, prematurity, and developmental immaturity are significant risk factors (Thapar, 1998; Zametkin and Liotta, 1998; Szatmari, Offord and Boyle, 1989a).

If the parents and school cannot adapt to the child's problems of impulsivity and short attention span, other conditions that affect health and development may occur, including aggression, early school leaving, and perhaps later substance abuse (Mannuzza et al., 1993). These outcomes can further impair health and make it less likely that the child will find a health-promoting environment in which to flourish. Effective treatments for ADHD and ADD include medication and psycho-social intervention (Goldman et al., 1998; Pelham, Wheeler and Chronis, 1998).

Other psychiatric disorders

The causes of anxiety, mood and behaviour disorders in children are clearly multifactorial. Although psycho-social risk factors (e.g. abuse, parental psychiatric illness, severe poverty) may be important for understanding disruptive behaviour disorders, many biological and genetic risk factors come into play (Rutter, 1997; Offord and Fleming, 1996), particularly for the anxiety and mood disorders of childhood and adoloscence. All of the psychiatric disorders of childhood have a strong genetic component, although more research is needed to establish exactly how these genetic factors operate (Rutter et al., 1990; Plomin and Rutter, 1998). Moreover, the developmental disabilities referred to above (mental retardation, PDDs and specific learning disorders) are also significant risk factors for these conditions (Beitchman and Young, 1997).

Emotional and behavioural disorders are associated with a poor long-term outcome (Offord et al., 1987) and high economic cost in terms of treatment and lost productivity at school and in the working world. Many adult psychiatric disorders such as substance abuse, alcoholism, depression and schizophrenia are also caused, in large part, by genetic factors; the onset of these conditions often takes place in childhood or adolescence (Rutter, 1995; Fombonne, 1998).

Conditions and Trends

This section summarizes what is known, in the Canadian context, of the prevalence of conditions or disorders caused at least in part by biological and genetic risk factors. It also presents the foreseeable trends that will have an impact on the health of children with disabilities in the future.

The prevalence of biological- and genetically-based disorders is significant.

The prevalence of serious medical conditions of childhood is relatively stable. For example, in 1992 the rate of leukemia for children between ages 0 and 19 was 4.56 per 100,000 population. Despite slight fluctuations, this rate had remained relatively stable since 1985 when the rate was 4.41 per 100,000 population (Huchcroft et al., 1996, p. 92). It is likely that more effective medical treatments will become available in the future for children with acute and chronic medical disorders. As a result, children with diseases such as cystic fibrosis and cancer will live longer and require more intensive care, even into adulthood.

With the significant advances in perinatal care, more premature babies are surviving in Canada today than 20 years ago (Saigal et al., 1989). In recent years, there has been little variation in the prevalence of prematurity: in 1991, 3.7% of babies born in the Canadian population were born prematurely (Statistics Canada, 1993, pp. 18–19), and in 1995, the percentage had remained relatively unchanged at 4.0% (Statistics Canada, 1997, p. 21). With increased chances of survival, the number of babies with disabilities due to prematurity will rise, as will the proportion of severe cases.

It is estimated that, in industrialized countries, between 1 and 3 children in every 1,000 will be born with fetal alcohol syndrome (FAS); however, the rate for children with fetal alcohol effects (i.e. children with prenatal alcohol exposure but only some FAS characteristics) may be several times higher (Health Canada, 1996, p. 4). In Canada, the rate of FAS for the Aboriginal population may be 10 times higher than that for the non-Aboriginal population (CCSA National Working Group on Policy, 1994).

Each year in Canada, approximately 400 babies are born with neural tube defects (NTDs), which represents about 1 of every 1,000 births (McCourt, 1995). Because many cases of NTD are spontaneously aborted or detected antenatally and therapeutically aborted, it is estimated that there may be at least 800 NTD-affected conceptions each year (McCourt, 1995). Between 90% and 95% of NTDs occur in families with no family history of the condition (Cohen, 1987).

As a group, developmental disabilities are common. For example, the prevalence of autism in Canada is estimated at 0.1% (Bryson, Clark and Smith, 1988), mental retardation at about 3%, and specific learning disabilities at approximately 10% (Beitcham and Young, 1997). Although there is no evidence that actual prevalence is increasing, the number of children receiving these diagnoses is increasing, leading to a greater demand for services.

The prevalence of ADD is estimated at between 5% and 10% and is more common in boys than girls (Szatmari, Offord and Boyle, 1989b). The rate of occurrence does not appear to be affected by factors such as place of residence (urban versus rural) or socioeconomic class.

The psychiatric disorders of childhood are also common, with combined prevalence rates of between 10% and 20% among school-aged children (Offord et al., 1987). Some data indicate that the prevalence of substance abuse, depression, suicide and antisocial behaviour is increasing (Fombonne, 1998). Disorders such as depression and anxiety are more common in adolescence than childhood, but more research is needed to chart the appearance and disappearance of emotional and behaviour symptoms over time.

Advances in biomedical research raise serious issues.

With the recent advances in molecular genetics and the anticipated completion of the Human Genome Project by 2002, the genes for many inherited, developmental and psychiatric disorders of childhood will eventually be identified. These medical breakthroughs will raise controversial issues about family planning, disability insurance, confidentiality and genetic stigmatization. Policies will need to be developed to deal with these important ethical questions based on sound empirical research (Dickson, 1998). Moreover, with the revolution currently underway in molecular biology, it is anticipated that the identification of genetic variants responsible for many conditions that affect child health will lead to important advances in drug treatment and possibly even to gene therapy.

Genetic and Biological Factors and Other Determinants

Employment

As more and more children with genetic, developmental and severe psychiatric disorders mature into adults, there will be a need for an increased number of jobs that benefit people with disabilities: jobs that provide the person with dignity and appropriate remuneration, and are suited to their capabilities so that they can be productive members of society.

Education

Both early diagnosis and intervention are essential to ensuring a positive long-term outcome for at-risk children. Evidence indicates that early intervention with a significant educational component has both short- and long-term benefits for disadvantaged children (Zoritch, Roberts and Oakley, 1998). Early intervention for children with developmental disorders has also been shown to be effective (Rogers, 1998).

The education system has at its disposal remedial programs for children with various forms of learning disabilities (Lovett, Ransby and Barron, 1988) that may improve long-term outcome. Children with physical disabilities due to a variety of conditions can now be fully educated in mainstream and integrated settings. This will lead to improved educational outcomes for these children and to better health in the long term.

Social Environment

Biological and genetic risk factors may also limit the kinds of environments in which some children can participate. For example, some schools and recreational facilities may not be able to accommodate children with disabilities. A child with a biological/genetic risk factor in an inappropriate environment may have her/his health further impaired.

A chronic health problem may also lead to emotional difficulties. By itself, a chronic medical illness is not associated with emotional, behavioural, or learning problems; it can, however, lead to difficulties in everyday living that impair the child's ability to participate fully in the community (Cadman et al., 1986). In addition, the actions and reactions of people in the child's social environment can moderate the impacts of the child's limitations and enhance the degree to which the child can cope within the environment.

Children with biological- or genetic-based disabilities may also be deprived of the opportunity to use their innate resilience and coping skills. For example, the tendency is to move children with aggressive behaviour from less restrictive settings (e.g. those in which they are integrated with other children) to more restrictive settings (e.g. segregated classrooms, home schooling). However, these latter environments may be less appropriate for dealing with challenging behaviour because they may lead to labelling, negative peer influences and fewer opportunities to use positive coping strategies. Some central nervous system diseases (Lesch-Nyhan syndrome) and developmental disorders (autism) may lead to specific behaviours that are maladaptive in themselves, such as self-mutilation, rituals and obsessions.

Natural and Built Environments

More children with severe physical and developmental disabilities will be living in the community as a result of the closing of institutions and the desire of parents to keep their children with disabilities at home. The increase will have an impact on the demand for appropriate housing in the community and the need for community resources to address this population of clients at the various stages of life.

Personal Health Practices

It is becoming increasingly apparent that preparing for pregnancy increases the chances of a safe and successful pregnancy outcome. A striking example of this is the potential for reducing the risk of neural tube defects with the consumption of a supplement containing folic acid prior to conception.

Health Services and Social Services

The degree and severity of a disability are in part determined by the access to services for the condition, the effectiveness of those services, and the accommodations made by the child's parents, school and community. For example, while children with attention deficit may not be able to be cured, they can be treated effectively with medication so that they may no longer exhibit symptoms. Likewise, for a child with cerebral palsy, access to physiotherapy is crucial as this type of treatment can positively influence the degree and severity of the condition.

As more children with disabilities are cared for at home, a heavy burden is placed on parents to navigate the system, act as advocates for their children and arrange for special services. Eventually these children will grow into adults, which will result in demands being placed on aging parents and on services for adults with developmental disabilities.

The degree and severity of a disability are in part determined by the access to services for the condition, the effectiveness of those services, and the accommodations made by the child's parents, school and community.

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Chapter

9

Health Services and Social Services

Overview

Health and social services comprise a very broad and diverse set of influences on healthy child development. Health services include those services and supports provided by doctors, nurses, pharmacists, dentists and other health-care professionals that focus upon both the physical and mental health of children and, at times, their primary caregivers. Social services consist of a wide variety of programs, services and supports that address both the basic needs of children (including the need for protection) and aspects of their social and psychological development (such as awareness, judgment, feelings, behaviour and relationships).

These services are important for two reasons. Throughout childhood, there are opportunities to provide the conditions and supports that keep children on healthy developmental pathways. Health and social services are important primarily in that they can contribute to promoting this positive development. And second, if these opportunities are missed, or if children are disadvantaged in some way, services can help reduce the risk of negative consequences, and in many instances partially or wholly ameliorate those that do occur.

There is a significant difference, however, in the availability of health services compared with social services. Health services are available to all children, including those at risk and those with special needs.[1] That is, they are more or less universal, with elastic public funding that largely reflects usage. For example, a family physician can order tests or refer to specialists in an effort to diagnose a child's health condition, and the costs of those services will be covered, for the most part, by the health-care system.

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[1] Availability is not the same as accessibility. Services may be available but not accessible if people are not aware of them, cannot get to them, or have beliefs, languages, or cultures that are not compatible with them.

Social services, on the other hand, are not universally available to young people and their families. They tend to be targeted towards those at risk and those with special needs and are restricted in availability by fixed levels of funding. So if, in the above example, the family physician's concern was about a child's mental rather than physical health, the physician could refer to a children's mental health program for assessment, but there is no assurance that the child will be seen. Assuming that the service even existed, access would largely depend upon factors such as severity of need and competing demands on the assessment service.

Despite these differences in funding and availability, both service sectors share the experience of having undergone restructuring in most provinces over the past 10 years, with a resulting reduction of public expenditures for many programs — despite increases in the demand for some services.

Relationship to Healthy Child Development

Health and social services contribute to healthy child development in a variety of ways. They provide services and supports at all stages of childhood, from preconception through young adulthood. They also provide services and supports in response to changing life circumstances and health status, ranging from wellness through to illness or other negative health conditions. And they provide services and supports at different points of intervention, from promotion and prevention through treatment and rehabilitation.

Health and social services contribute to healthy child development in different ways at various life stages.

Health services and social services play a particularly important role in getting children off to a good start in life. Their contributions can begin even prior to conception through a variety of services for non-pregnant women. These include services that diagnose and treat general health problems — organic medical problems, nutritional status, sexually transmitted diseases, immune status, gynecological, anatomic and functional disorders, occupational exposures, and genetic risk — that could adversely affect future pregnancy, fetal development and maternal health.

They also include services that diagnose and treat mental health disorders and problem behaviours such as smoking, alcohol and other substance abuse. And finally, they include services that promote responsible and effective parenting such as comprehensive family planning programs, which provide education and counselling, physical exams and lab tests, and information and instruction on family planning methods (Carnegie Corporation, 1994, p. 80).

Health and social services also provide invaluable supports for women once they become pregnant, and to a lesser degree, for prospective fathers. Medical services provide early diagnosis of pregnancy. Counselling services support the continuation of pregnancy through referrals to prenatal care, childbirth preparation classes, and adoption services. Good prenatal care ensures a whole host of benefits including requisition of appropriate laboratory tests, diagnosis and treatment of general and/or mental health problems, assessment of nutritional status, screening for infectious diseases, and identification and management of high-risk pregnancies.

Health services and social services play a particularly important role in getting children off to a good start in life.

Prenatal counselling and anticipatory guidance services promote healthy choices and behaviours during pregnancy, early detection of possible abnormalities, preparation for labour, information on infant nutritional needs and feeding practices (including breastfeeding), and awareness of the emotional and social changes brought on by the birth of a child.

Increased emphasis on population health and early child development.

There has been a growing appreciation of the population health perspective, particularly at the federal and provincial/territorial levels of government. Population health, with its emphasis on broad health determinants, has become a very useful framework for understanding both the factors that influence health and the opportunities for improving health status of the population as a whole. One consequence of this improved understanding of the factors that influence population health has been a renewed emphasis on early child development.

Reduced Spending and Care

In recent years, spending cuts on health care and overall reform of the health care system have resulted in a shift away from traditional services and settings. There are some indicators that continuity of care has been affected by the shift away from hospital care without alternative infrastucture and supports being made available. For example, non-voluntary short hospital stays have been associated with infant re-admission, problems breastfeeding, parents' difficulty adjusting and maternal dissatisfaction (Rush, 1996, p. 6).

There has always been a strong emphasis on getting children off to a good start; but in the past, much of the rationale for this emphasis was tied to preparing children for successful transition into the formal education system. Now we understand that in addition to promoting school readiness, investing in the early development of children holds other benefits as well, particularly in terms of adult health status. As a result of this growing awareness, governments at all levels have been either introducing new programs to support early child development or, in some cases, shifting the use of existing resources.

System level emphasis on inter-sectoral action.

Given the variety of factors that influence health and well-being, and the fact that some of the most powerful of these influences lie outside the traditional health-care sector, the best way to improve population health is through a multi-sectoral approach. For this reason, governments at all levels have been searching for ways to connect the contributions of various sectors including health, social services, education, finance, justice, recreation, and housing.

These inter-sectoral efforts have both "horizontal" dimensions (in that they connect different partners and sectors) and "vertical" dimensions (in terms of layers of organizations and levels of government). Both of these dimensions are important to varying degrees depending upon the type of inter-sectoral action.

Many jurisdictions have tried to strengthen the connections between sectors within government through reorganization. The two most common approaches have been to integrate responsibilities under one ministry or department, and to create some form of inter-sectoral committee or structure. These are examples of efforts to promote inter-sectoral action along a horizontal dimension.

But there also are increasing efforts to stimulate inter-sectoral action along the vertical dimension. Among other benefits, this should help alleviate situations in which there have been disagreements over who should be providing what, which resulted in children and families falling through the cracks of an uncoordinated system.

The emphasis on inter-sectoral action has had very real implications for the providers of health and social services, particularly in terms of heightened expectations that they take an integrated and collaborative approach to the planning and delivery of services.

Service level emphasis on holistic and customized packages of support.

The other side of the "inter-sectoral action coin" is an increased emphasis on comprehensive and customized packages of services at the consumer level. For the same reasons that it is important to be able to draw upon the contributions of different sectors at a systems level, it is also important to be able to translate those inter-sectoral contributions into packages of services and supports that respond to the unique circumstances and needs of individuals and families.

As a result, funders and consumers are putting increased pressure on service providers to find approaches that respond to the full range of unique needs of those that require health and social services. In the health sector, this has resulted in public health units joining other sectors in community-based initiatives, with particular emphasis on providing multi-faceted supports to those at risk. In social services, it has given rise to more comprehensive and customized approaches to provision of services and supports such as wrap-around services, family preservation programs, and service brokerage.

Health and Social Services and Other Determinants

Income and Social Status

Income and social status are powerful influences on health and well-being at all stages of life, but they are particularly influential on the life chances of children. There are troubling correlations between low income status and the need for health services, particularly in relation to getting children off to a good start. The same holds true for certain social services; for example, child protection agencies report disproportionate numbers of poor women and children among their caseloads.

The National Longitudinal Study of Children and Youth (NLSCY) found that "single-mother family status and low income significantly and independently influenced child well-being" (Lipman, Offord and Dooley, 1996, p. 89).

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Once a child is born, health and social services can contribute to its early development by providing evaluation and support immediately after delivery, linkage to continuous and comprehensive pediatric care after discharge, diagnosis and treatment of maternal health problems including postpartum depression, nutritional assessment and supplementation, infant stimulation programs, home-visiting programs that support effective parenting and parent-child attachment, and quality child care.

As a child moves towards school age, the contributions of health and social services often become more situation-specific. If a child is developing normally, parents may only draw upon the occasional health service to diagnose and treat the usual childhood maladies. As well, they may use some of the more competency-based social services, such as family resource centres or other parenting support programs.

However, for children who are living in circumstances that place them at risk, or for those who have unique characteristics that translate into special needs, a whole host of preventive and special services may come into play. These include a variety of child and family services such as mental health and child protection services, developmental and rehabilitative services (e.g. physical therapy, language therapy), and school readiness programs.

The same pattern holds true for school-aged children and adolescents. Those who are developing normally tend to use health and social services on an as-needed basis. Those who are at risk or have special needs draw upon a variety of specialized services. Health and social services can make a significant contribution to young people approaching adolescence by providing both good information about personal health and programs that promote positive life skills.

These can be provided in a variety of ways, including: programs that build social support networks, especially those addressing factors that predispose young people to engage in risky behaviour; adult mentoring programs that foster a stable, supportive bond between a young person and a caring adult; well-developed peer-mediated counselling and peer tutoring programs; and life skills programs that stress interpersonal, decision-making and coping skills (Carnegie Corporation, 1996, p. 19).

Services for Children with Special Needs

In 1991, 7.2% of children and youth between 0 and 19 years of age living at home had at least one disability (including physical, psychological and mental disabilities). The rate was higher among boys (7.9%) than girls (6.3%). Most (85%) children with disabilities had mild disabilities; 11% had moderate disabilities; 4% had severe disabilities. The rates of moderate and severe disabilities were higher among 15- to 19-year-olds (19% and 5% respectively) (CICH, 1994, pp. 151–152). See Exhibit 9.1.

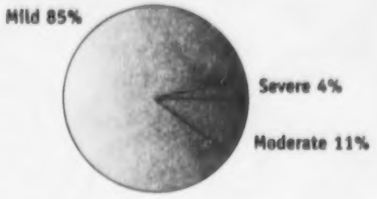
Almost 50% of all children and youth with disabilities had specialized transportation services available in their communities; however, more than 13,000 children and youth with disabilities had a need for transportation services but did not have them in their communities. Few (1.5%) children with disabilities needed specialized accommodation features (e.g. ramps, widened doors, automatic doors, elevators), but did not have them (CICH, 1994, pp. 162–163).

Health and social services contribute to healthy child development in response to changing life circumstances and health status.

Most children get off to a good start in life, and then grow and develop in a reasonably normal way. There are numerous health and social services (described in the next section) that promote and support this well-being and positive development.

But health status can change at any point in time, as can the conditions or circumstances that contribute to it. For this reason, there are a number of health and social services that respond to changing health status and life circumstances. Most of these services are designed to lessen the impact of what are hoped to be temporary setbacks in states and conditions of well-being. They range from direct services to young people and their caregivers, through to programs, services and other supports that are intended to strengthen the conditions in which these young people and caregivers find themselves.

9.1 Distribution of children aged 0 to 19 years with disabilities, by severity of disability, Canada, 1991



Source: Canadian Institute of Child Health (1994). *The Health of Canada's Children: A CICH Profile*, 2nd edition. Ottawa: CICH, p. 152.

For example, there are a variety of primary, secondary and tertiary health-care services that diagnose and treat the full spectrum of childhood diseases and other health conditions. Similarly, there are all kinds of social services that attempt to offset difficult life circumstances (e.g. parental illness or injury, unemployment, and changes in family structure). These include respite services, food banks, mediation services, counselling services, child welfare services, family income security programs, employment training programs, and subsidized housing.

For those with long-term or chronic health or developmental concerns, such as disabling conditions, there are also a number of special health and social services, ranging from rehabilitative services (e.g. physiotherapy and speech and language therapy) to long-term services and supports (e.g. attendant care).

Immunization is Key

Many childhood diseases are preventable. These include diptheria, tetanus, measles, rubella and congenital rubella syndrome, mumps, pertussis, poliomyelitis and invasive infections due to Haemophilus influenza.

For some diseases, the risk of long-term consequences is greater if infection is in early childhood. Major blood-borne pathogens such as hepatitis B and hepatitis C cause long-term persistent infections in children. The risk of chronic hepatitis B infection is 90% to 95% if exposure occurs in infancy, but only 6% to 10% if acquired in adulthood (Health Canada, 1998, p. 90). Hepatitis C may lead to chronic infections in up to 70% to 80% of cases (WHO et al., 1999, p. 36).

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But health status can change at any point in time, as can the conditions or circumstances that contribute to it. For this reason, there are a number of health and social services that respond to changing health status and life circumstances. Most of these services are designed to lessen the impact of what are hoped to be temporary setbacks in states and conditions of well-being. They range from direct services to young people and their caregivers, through to programs, services and other supports that are intended to strengthen the conditions in which these young people and caregivers find themselves.

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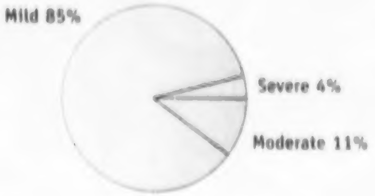

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Health and social services contribute to healthy child development at different points of intervention.

A true system of health services and social services is comprised of a variety of services and supports that lie along a continuum of points of intervention. This continuum ranges from promotion and prevention at one end, to treatment and long-term care at the other. Having such a continuum of services and supports enables health and social services to contribute to healthy child development at all points of well-being.

For example, health and social services can promote good health and normal development through services such as well-baby clinics and parent education programs. They also can contribute to reducing risk and preventing illness or other negative health conditions through immunization programs and early identification programs that screen for developmental anomalies or genetic disorders.

Where a concern is already evident, health and social services can intervene early before the situation worsens, through strategies such as home-visiting programs and child development programs. In more serious situations, they can treat illness or other negative health conditions through resources such as neonatal trauma units, programs that treat postpartum depression, and primary care services for childhood diseases.

And finally, for situations in which there is a long-term concern, health and social services can contribute to healthy child development by providing support (e.g. counselling and anticipatory guidance) to parents of children with chronic illness or disabling conditions.

Child-care Subsidies

High-quality child care contributes to greater social competency, higher levels of language development, higher developmental levels of play, better ability to self-regulate and fewer behaviour problems.

While all provinces have fee subsidies for low-income families, most provinces limit their availability (CCSD, 1996, pp. 30–31). In fact, in recent years, the number of child-care subsidies for low-income parents along with operating or wage grants to child-care providers were decreased in many provinces (CCSD, 1996, pp. 30–31). In 1993, the income cut-off for child-care subsidies was less than $21,000 for a two-parent family with two children in seven provinces and one territory (CCSD, 1996, pp. 30–31).

Conditions and Trends

In Canada, health and social services are by and large the responsibility of provincial/territorial and local governments. Given this decentralized approach, there is considerable diversity across the country with regard to legislation, funding, administration and availability of these services. Along with this diversity, however, there appear to be a few common themes.

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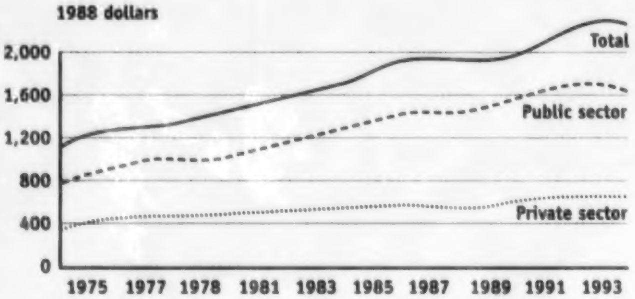
Fiscal restraint and systems change.

Perhaps the two most common themes across all jurisdictions are those of fiscal restraint and systems change. With the persistent concerns about deficits and debt, all levels of government have been seeking ways to contain costs and restructure service systems to be more efficient and effective. These two trends have had a significant impact on the funding, organization and delivery of health and social services across all categories of service: universal, targeted, and special services. And with the current uncertainty about the state of the international economy, the concerns — at least about cost — are not likely to go away.

In 1994, for the first time in 20 years, health expenditures showed a decline, per person and as a percent of GDP (Health Canada, 1996, p. 26). See **Exhibit 9.2**.

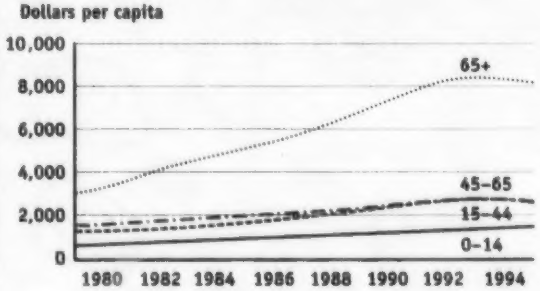
Health care spending on children accounts for less than 10% of all spending, even though children under the age of 15 make up about 20% of the population (CCSD, 1996, p. 30). Since 1980, the growth in per capita expenditure on health has been about the same for all age groups. See **Exhibit 9.3**.

9.2 **Real per capita health expenditures, Canada, selected years, 1975 to 1994**



Source: Health Canada (1996). *National Health Expenditures in Canada 1974–1994: Summary Report*. Catalogue No. H21-99/1992-2. Ottawa: Health Canada, p. 26.

9.3 **Per capita total health expenditures by age group, Canada, selected years, 1980 to 1994**



Source: Health Canada (1996). *National Health Expenditures in Canada 1974–1994: Summary Report*. Catalogue No. H21-99/1992-2. Ottawa: Health Canada.

Increased emphasis on population health and early child development.

There has been a growing appreciation of the population health perspective, particularly at the federal and provincial/territorial levels of government. Population health, with its emphasis on broad health determinants, has become a very useful framework for understanding both the factors that influence health and the opportunities for improving health status of the population as a whole. One consequence of this improved understanding of the factors that influence population health has been a renewed emphasis on early child development.

Reduced Spending and Care

In recent years, spending cuts on health care and overall reform of the health care system have resulted in a shift away from traditional services and settings. There are some indicators that continuity of care has been affected by the shift away from hospital care without alternative infrastucture and supports being made available. For example, non-voluntary short hospital stays have been associated with infant re-admission, problems breastfeeding, parents' difficulty adjusting and maternal dissatisfaction (Rush, 1996, p. 6).

There has always been a strong emphasis on getting children off to a good start; but in the past, much of the rationale for this emphasis was tied to preparing children for successful transition into the formal education system. Now we understand that in addition to promoting school readiness, investing in the early development of children holds other benefits as well, particularly in terms of adult health status. As a result of this growing awareness, governments at all levels have been either introducing new programs to support early child development or, in some cases, shifting the use of existing resources.

System level emphasis on inter-sectoral action.

Given the variety of factors that influence health and well-being, and the fact that some of the most powerful of these influences lie outside the traditional health-care sector, the best way to improve population health is through a multi-sectoral approach. For this reason, governments at all levels have been searching for ways to connect the contributions of various sectors including health, social services, education, finance, justice, recreation, and housing.

These inter-sectoral efforts have both "horizontal" dimensions (in that they connect different partners and sectors) and "vertical" dimensions (in terms of layers of organizations and levels of government). Both of these dimensions are important to varying degrees depending upon the type of inter-sectoral action.

Many jurisdictions have tried to strengthen the connections between sectors within government through reorganization. The two most common approaches have been to integrate responsibilities under one ministry or department, and to create some form of inter-sectoral committee or structure. These are examples of efforts to promote inter-sectoral action along a horizontal dimension.

Education

Health and social services can provide a variety of supports that help young people stay in school. For example, health services strive to maintain health, but they also diagnose and treat illness or other health conditions, which might interfere with school attendance. A vast array of social services assess and treat emotional, behavioural or social concerns that could interfere with school attendance and performance. Social services also provide supports, such as child care, which allow young parents to continue on with their education.

Health and social services also promote healthy early development, and otherwise ensure that children are ready for school. Health services such as primary care, immunization programs and injury prevention programs contribute to healthy early development, readiness to learn, and eventual school attendance. Social services — particularly those that support responsible and effective parenting, and early development — also contribute to getting children off to a good start and to making a successful transition into the formal education system.

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Social Environment

Health and social services link to the immediate social environments in a variety of ways. For example, some health services (such as home-visiting programs and parenting programs) and many social services (including family resource centres, mutual aid groups, parent and child drop-in programs, child-care centres, and family preservation programs) include in their design the strengthening of social networks to overcome the negative effects on parents and families of social isolation.

Other services — including community health programs, community development programs and local economic development programs — attempt to strengthen local social environments by working not just with individuals and families, but with local groups and broader communities as well.

Natural and Built Environments

Health and social services link primarily with natural and built environments through surveillance and regulatory functions, but also through awareness and public education activities. For example, public health departments play a leading role in the monitoring and enforcement of standards related to the natural environment, such as air and water quality. They also play a similar role with regard to public health standards for built environments for children, including parks, schools, housing units, child-care programs, and residential care settings. Social services play a smaller role, but try to ensure that local built environments are safe and welcoming to children and youth, and are supportive of their developmental needs (e.g. youth programs at malls and in high-density housing areas).

Personal Health Practices and Coping Skills

A variety of services are intended to promote healthy life choices and improve coping skills in relation to child development. In the health sector, services include: comprehensive family planning programs; health education programs; programs that diagnose and treat health problems that could affect pregnancy or birth; programs that diagnose and treat mental health problems; and counselling and anticipatory guidance for parents of children with a chronic illness or disabling condition.

In the social services sector, these include: family resource programs; parent and child drop-in programs; individual, couple and family counselling services; child and family mental health programs; child protection services; respite programs; and community-based programs to prevent family violence.

Genetic and Biological Factors

Health and social services have a small but growing link to biology and genetics as contributors to healthy child development. Most of the services that have relevance for these two fields include a counselling component. For example, prenatal health services provide genetic screening, diagnosis and counselling, as well as diagnosis and treatment of gynecological anatomic and functional disorders that could adversely affect pregnancy, fetal development, or maternal health. Both health and social services also counsel with regard to pregnancy continuation and positive health behaviours related to pregnancy.

Culture

Some health and social services are intended to be bridging services (i.e. they assist people from varying cultural backgrounds to become more familiar and comfortable with mainstream health and social services). In addition, health and social services are increasingly being designed and delivered in a manner that is both sensitive and responsive to the cultures of those they serve. In some instances, such as social services within Aboriginal communities, the actual governance and delivery of services is being turned over to the communities themselves.

Gender

Health and social services link to gender in a number of ways. Health services link with the biological dimension of gender (e.g. reproductive health), while social services may have more links with the social dimension of gender — parental roles, societal attitudes, receptiveness to services, and gender-related patterns of behaviour and service (e.g. sole-parent led families, risk-taking behaviours).

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Chapter

10

Culture

Overview

The concept of culture refers to a shared identity based on such factors as common language, shared values and attitudes, and similarities in ideology. In terms of health, some cultural groups face additional risks because of dominant cultural values that contribute to conditions such as marginalization, stigmatization, loss or devaluation of language and culture, lackof access to culturally appropriate health care and services, and lack of recognition of skills and training.

Racism and discrimination have direct impacts on health, as well as indirect impacts mediated through various forms of social, political and economic inequity. For example, the factors that contribute to the major health disparities between First Nations, Inuit and Métis communities and other communities (including education, income, culture, and social and physical environment) are rooted in a long history of prejudice and racism.

Relationship to Healthy Child Development

Minority groups often experience "acculturative stress."

New immigrants and refugees, as well as Aboriginal people and other ethnic group members are likely to experience stress from a variety of sources — including their economic circumstances, social and personal isolation, negative attitudes, and threatened or actual violence (Berry, 1980). This "acculturative stress" can have significant health impacts, both physical and mental. For example, Aboriginal people in Canada often experience stress when they move from an area of relative isolation or a smaller community to a large urban centre. This stress may result in problems of alcoholism, family disruption and physical illness (Masi, 1989a, p. 72).

One significant source of stress among members of immigrant groups is the conflict between adults and children. Immigrant children tend to integrate more quickly into the dominant culture (Baptiste, 1990; Kim, 1980), often learning the language and cultural mores before their parents. As a result, children become the family's translators and cultural interpreters, with a consequent reversal of roles and destabilization of normal lines of community and authority in the family (Baptiste, 1993).

Minority cultural groups may also feel conflicting desires and expectations for their children — on the one hand, fearing that their children will acquire undesirable aspects of the new culture and, on the other, wanting them to obtain the characteristics that will equip them for success (Wakil, Siddique and Wakil, 1981; Xenocostas, 1991; Markowitz, 1994). The potential for conflict is particularly high during adolescence, when issues of separation, individuation and identity rise to the surface (Baptiste, 1993). It is important to note that while families play an important role in passing along culture, the importance of the family has declined relative to the impact of other sources of cultural influence, such as the marketplace and schools (Erickson, 1991, p. 1).

Aboriginal people in Canada often experience stress when they move from an area of relative isolation or a smaller community to a large urban centre.

Migration can affect physical health.

There is some evidence that migration poses a threat to physical health because of dietary changes and exposure to local pathogens against which migrants have no immunity (Beiser et al., 1995, p. 68).

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Refugees face unique stresses.

There is some evidence that voluntary migrants (e.g. immigrants) experience less stress than those who expose themselves to cultural change involuntarily (e.g. refugees and Aboriginal people) (Berry et al., 1987). Poverty, combined with uncertainty about the outcome of their refugee claim and negative attitudes in the host country, can create enormous stress for refugees. As well, refugee children are likely to have experienced violence in their homelands and may be at high risk for post-traumatic stress disorder (Beiser et al., 1995, p. 68).

The context of resettlement plays a mitigating role.

While the experience of migration and resettlement itself may result in significant stress for families, there are a number of mitigating factors that determine whether or not immigration is necessarily followed by maladaptation. These factors include selection policies, pre-migration experiences and the welcome accorded by the host country (Beiser et al., 1995, p. 67).

Stress, personal strengths and social resources interact in complex ways to determine health risks for minority cultural groups. Factors such as maternal loss, depressed mothers and general family instability contribute increased vulnerability among refugee and immigrant children. These factors also contribute to lower scholastic achievement levels and a higher delinquency rate (Rumbaut and Ima, 1988, as cited in Beiser et al., 1995).

Children who are separated from family members during the early years of resettlement are at an increased risk for negative mental health consequences, particularly if they are placed with a family of a different ethnic origin (Porte and Torney-Purta, 1987).

Racism and discrimination contribute to stress.

Many minority groups in Canada report experiencing racism and discrimination. For example, half of Indo-Canadian men and women living in South Vancouver reported experiencing some form of racial hostility, ranging from verbal abuse and physical harm to work force discrimination (Nodwell and Guppy, 1992). In the 1980s, testimonies of racial minorities before the House of Commons Special Committee on Participation of Visible Minorities in Canada revealed many instances of differential treatment. One study of the Chinese community in Toronto found that perceived discrimination correlated with various psychological symptoms, such as nervousness, sleep problems, headaches, mood and degree of worry (Dion, Dion and Pak, 1992).

Intercultural Adoptees

One study found that intercountry adoptees are as well-adjusted as children in the population as a whole. These children are well integrated, have high self-esteem and positive peer relations. The only area of concern is with respect to ethnic and racial identity (Westhues and Cohen, 1994). Furthermore, there is evidence that children of parents who maintain their ethnic pride and cultural identity perform better than children whose parents assimilate fully (Rumbaut and Ima, 1988, as cited in Beiser et al., 1995). Cultural kinship — identifying with the language and history, religious and ceremonial rituals, and codes of behaviour of a culture — contributes to children's sense of identity, security and self-esteem (Haka-Ikse, 1988, p. 1113).

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Cultural differences affect life changes.

The life changes (e.g. education, occupational status and employment income) for immigrants vary according to their country of origin. For example, European immigrants fare better in the Canadian labour market than their Black and Asian counterparts (Reitz and Breton, 1994, pp. 112–114).

Cultural background, including ethnicity, can have an effect on academic success (Farkas et al., 1990, p. 3). Despite some emphasis on multicultural education, Canadian schools generally reproduce the cultures and values of the dominant group (Hébert, 1992; Shamai, 1992). Language and communication problems cause a disproportionate number of children from certain cultural groups to be placed in special and vocational education classes (Toronto Board of Education Consultative Committee on the Education of Black Students in Toronto Schools, 1987). The result has been that the future education and careers of these children are seriously limited (Masi, 1989a, p. 71).

Another study found that immigrant children whose mother tongue is neither English nor French initially obtain lower marks in English compared with Canadian-born children; however, they eventually catch up in their ability to speak French or English, as well as in many other areas of school performance (Samuel and Verma, 1992, pp. 55–56).

Cultural ties also help to maintain occupational segregation (Reitz, 1990). Lack of recognition of diplomas and training received by immigrants in their homeland decreases their access to work, resulting in occupational ghettoizing and low socio-economic status (Maritime Centre of Excellence for Women's Health, 1997).

Culturally sensitive health and social services are important.

There is considerable evidence that physicians' awareness of cultural issues can positively affect the patient–physician relationship and contribute to patient compliance and positive health outcomes. For example, an evaluation of Aboriginal health services suggested that their effectiveness was often compromised by the cultural differences between those giving and those receiving the services (Gibbons, 1992). Family physicians — often the first

Female Genital Mutilation

[illegible]

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Female Genital Mutilation

Generally performed prior to puberty, female genital mutilation (FGM) involves the removal of part or all of the female genitalia and, in the most severe cases, the clasping together of the labia. FGM is based on traditional practice rather than religion, and is employed in some cultures as a way of controlling women's attitudes towards sex, their sexuality, and of reinforcing the belief that it is necessary to ensure their virginity and marriageability. FGM is most commonly practised in Africa but is also experienced by women in parts of Asia and some countries in the Middle East. Some women and girls who emigrate to Canada were subjected to FGM prior to their arrival. In Canada, FGM is forbidden under the general provisions of the Criminal Code, and recent amendments to the Criminal Code have made it illegal to transport a child out of Canada with the intention of performing FGM.

point of contact with the Canadian health system — are under particular pressure to become familiar with the special needs of clients from different cultures (Hamilton, 1996, p. 585).

Other factors play a role, including traditional beliefs about the causes of illness, attitudes towards caregivers and family values about care. Some cultural groups routinely involve members of the extended family in providing care. For example, people from developing countries often have a health-care network that includes parents, relatives and non-relatives as health-care provider (Masi, 1989b, p. 252). Moreover, language difficulties can cause misunderstandings by both physicians and immigrants, affecting diagnosis and treatment. While large urban areas may have access to language interpretation services, the lack of such services in smaller communities is a concern (Masi, 1989a, p. 71).

The issue of wife abuse must be addressed in a sensitive manner. Generally, immigrant women and those from some ethnic groups who are battered have little recourse. In some cases, community members may be more likely to support the husband. Often, there are few outside resources available to these battered women because of language or cultural barriers (Masi, 1989b, p. 253). As seen in Chapter 4, witnessing spousal violence appears to have the strongest influence on young people's risk factors, including substance abuse and criminal behaviour (Marion and Wilson, 1995, pp. 28–29).

Conditions and Trends

The conditions and trends listed here are not intended to be comprehensive, but rather to provide examples of how cultural differences exist in some key areas related to health.

Language and Ethnicity

- In the 1996 Census, 28% of the population identified themselves as having a background other than British Isles, French or Canadian (Statistics Canada, 1998a).

- In 1996, Canada's visible minority population totalled 3,197,480, representing 11.2% of the total population (28,528,125) (Statistics Canada, 1998b). See **Exhibit 10.1**.

- In 1996, Statistics Canada reported that about 16% of Canadians had a mother tongue other than English or French (Statistics Canada, 1998b).

- About one quarter of all migrant children younger than age 12 enter Canada as refugees (Beiser et al., 1995, p. 67).

- Traditionally, the sources of the majority of Canadian immigrants have been Europe and the United States. More recently, Asia, Africa, the Middle East and Latin America account for about three quarters of Canada's new immigrant population (Beiser et al., 1995, p. 68).

10.1 Distribution of visible minority population[a] by age, Canada, 1996

	Total	0–14	15–24	25–44	45–64	65–74	75+
				Number			
Total population	**28,528,125**	**5,899,200**	**3,849,025**	**9,324,340**	**6,175,785**	**2,024,180**	**1,255,590**
Total visible minority population[b]	3,197,480	778,340	521,060	1,125,730	581,275	129,415	61,655
Black	573,860	170,870	96,895	186,995	94,520	16,025	8,555
South Asian	670,590	168,585	107,465	230,245	127,355	26,425	10,505
Chinese	860,150	171,110	135,580	299,815	177,980	50,680	24,990
Korean	64,840	12,115	15,525	19,475	14,610	1,765	1,340
Japanese	88,135	12,545	11,830	20,850	14,670	5,280	2,965
Southeast Asian	172,195	49,295	28,380	68,210	20,195	4,895	1,785
Filipino	234,195	50,985	33,995	90,100	45,370	8,845	4,900
Arab/West Asian	244,665	60,850	37,040	95,005	39,995	8,185	3,630
Latin American	176,975	46,530	31,575	68,500	25,190	3,670	1,500
Visible minority[c]	69,745	15,065	11,015	27,690	12,995	2,160	915
Multiple visible minority[d]	61,575	20.385	11,755	18,945	8,425	1,480	575

a. The *Employment Equity Act* defines the visible minority population as persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour.

b. The visible minority groups are based on categories used to define the visible minority population under the Regulations to the *Employment Equity Act*.

c. Not included elsewhere. Includes Pacific Islander group or another write-in response likely to be a visible minority (e.g. West Indian, South American).

d. Includes respondents who reported more than one visible minority group.

Source: Adapted from the Statistics Canada Web site: www.statcan.ca

Injuries

- Injury-related mortality rates among young Status Indians (0 to 19 years old) are three times the national average (Health Canada, 1997, p. 55).
- Drowning rates are about eight times higher among First Nations and Inuit children and youth aged 0 to 19 years (Health Canada, 1997, p. 185).

Suicide

Children and youth aged 0 to 19 in Aboriginal reserve communities have a suicide rate almost five times that of children and youth in the general population (Health Canada, 1997, p. 55).

10.1 Distribution of visible minority population[a] by age, Canada, 1996

	Total	0–14	15–24	25–44	45–64	65–74	75+
				Number			
Total population	**28,528,125**	**5,899,200**	**3,849,025**	**9,324,340**	**6,175,785**	**2,024,180**	**1,255,590**
Total visible minority population[b]	3,197,480	778,340	521,060	1,125,730	581,275	129,415	61,655
Black	573,860	170,870	96,895	186,995	94,520	16,025	8,555
South Asian	670,590	168,585	107,465	230,245	127,355	26,425	10,505
Chinese	860,150	171,110	135,580	299,815	177,980	50,680	24,990
Korean	64,840	12,115	15,525	19,475	14,610	1,765	1,340
Japanese	88,135	12,545	11,830	20,850	14,670	5,280	2,965
Southeast Asian	172,195	49,295	28,380	68,210	20,195	4,895	1,785
Filipino	234,195	50,985	33,995	90,100	45,370	8,845	4,900
Arab/West Asian	244,665	60,850	37,040	95,005	39,995	8,185	3,630
Latin American	176,975	46,530	31,575	68,500	25,190	3,670	1,500
Visible minority[c]	69,745	15,065	11,015	27,690	12,995	2,160	915
Multiple visible minority[d]	61,575	20,385	11,755	18,945	8,425	1,480	575

a. The *Employment Equity Act* defines the visible minority population as persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour.

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Injuries

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Suicide

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6

Education

The majority of immigrant children aged 4 to 17 who came to Canada between 1981 and 1988 did not speak either official language (Samuel and Verma, 1992, pp. 53–54).

Culture and Other Determinants

Education and Employment

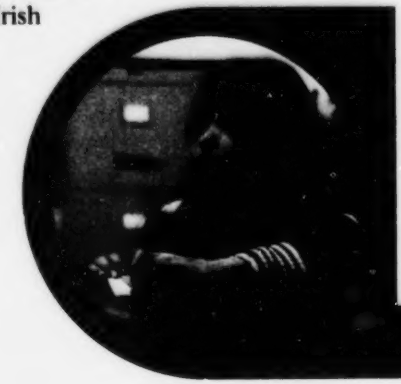
Culture affects a person's education and occupation, as well as the education and occupation of the person's spouse; this, in turn, has considerable consequences for income, knowledge of support structures, access to informal support in social networks, and personal coping skills (Erickson, 1991, p. 4).

Natural and Built Environments

Aboriginal children face a number of risks related to the natural and built environment. For example, Aboriginal children have an injury rate almost six times that of other Canadian infants (Health Canada, 1997, p. 55). They are also at greater risk of exposure to contaminants because of poor housing conditions, contaminated food sources, water supply and sanitation, and indoor and outdoor environmental contaminants (Postl, MacDonald and Moffat, 1994; Young, Bruce and Elias, 1991).

Personal Health Practices

There is evidence that culture affects personal health practices. For example, the prevalence of smoking is high among Inuit and Francophone women and low among most immigrant women (Maritime Centre of Excellence for Women's Health, 1997). Alcoholism has been noted as more prevalent among the Irish than the Jewish (Henderson and Primeaux, 1981, p. xix), and is virtually unheard of as a social or medical problem in Chinese society (Lin T.-y., 1983, p. 864). There are strong indicators that these differences are due to cultural factors, such as the degree of tolerance of alcohol use in a given community (Masi, 1989b, p. 253).



The majority of immigrant children aged 4 to 17 who came to Canada between 1981 and 1988 did not speak either official language.

Individual Capacity and Coping Skills

The incidence of suicide is higher among Aboriginal youth than among other Canadian young people. One recent study reported a suicide rate for Status Indians (aged 0 to 19) almost five times higher than the national average (Health Canada, 1997, p. 55).

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Chapter

11

Gender

Overview

Gender refers not only to the biological sex of an individual, but also to the "array of roles, personality traits, attitudes, behaviours, values, relative power and influence that society ascribes to men and women on a differential basis" (Health Canada, 1996, p. 16).

The biological component to gender cannot be overlooked. For example, girls are physiologically more likely to contract sexually transmitted diseases (STDs) after exposure than males. Any risks associated with pregnancy or problems related to menstruation are exclusive to females. Boys, however, because of their later development, are at greater risk for some early childhood diseases and conditions.

Gender is strongly influenced by the social environment in which we live. Early socialization by parents, peers and educators can temper or enhance the influence of biological determinants. Parents are likely to treat their children differently, encouraging or discouraging certain behaviours depending on the sex of the child. Peers reward sexually "appropriate" behaviours and punish "inappropriate" ones, shaping how children adopt and internalize socially constructed views of gender. The media also plays a role, reinforcing many stereotypes of male and female behaviours and capabilities.

Many health and social conditions can be attributed to gender-based social status or roles. For example, young women are more likely than young men to achieve lower education levels, earn low income, experience single parenthood, and to have lower levels of both self-esteem and feelings of personal competence. Females are also at higher risk for STDs, physical, sexual and dating abuse, smoking, and physical inactivity. All of these factors interact to negatively affect women's health. On the other hand, boys have higher mortality rates than girls — primarily from injury and suicide — and higher rates of learning and conduct disorders.

Relationship to Healthy Child Development

Biology and genetic endowment set the stage.

A variety of biological and genetic differences between males and females exert an influence on their health and development over the course of early childhood and adolescence.

Because of physiological differences, males and females have different sexual and reproductive experiences and risks. For example, the greater vulnerability of the female reproductive tract to organisms transmitted during unprotected sex places women at greater risk of acquiring certain sexually transmitted diseases (STDs). A man with a gonorrheal infection will infect about half of his female partners, while an infected woman will infect only 25% of male partners (Baird et al., 1993, p. 207). Females also carry an extra burden for sexual and reproductive health; menstruation, pregnancy and contraception are associated with numerous risks and side effects — both physical and emotional.

Overall, girls develop more quickly than do boys. From the time they are born, girls are more physically developed than boys, an advantage that continues throughout early childhood. By the time they enter school, girls are an average of one year ahead of boys in physical development (Eme and Kavanaugh, 1995). There is some evidence to suggest that this phenomenon may contribute to the higher incidence of birth defects among boys, and to the fact that boys appear to suffer more from the effects of Fetal Alcohol Syndrome (FAS) (Eme and Kavanaugh, 1995).

While girls aged 6 to 7 exhibit better coordination skills than boys (Prior et al., 1993), this advantage appears to change over middle childhood and adolescence. One reason may be that, as girls get older, they are less likely to participate in physical activities that promote the development of motor skills — including running, catching and throwing (McKinnon and Ahola-Sidaway, 1997).

Socialization is key.

Early socialization — including the influence of parents, peers, teachers and other significant adults — plays an important role in the acquisition of gender-based behaviours and attitudes among children.

Research has found that young boys and girls interact differently with their parents. For example, boys are more likely to be in conflict with their parents, to be punished and to see their parents in conflict. In addition, their family ties are not as strong as those of girls (Prior et al., 1993).

Similarly, parents often display different behaviours depending on the sex of the child. In father-child relationships, fathers appear to respond more positively to daughters' prosocial behaviour than to sons' behaviour (Kerig, Cowan and Cowan, 1993). They are also less tolerant of internalizing behaviours among girls and more tolerant of physical aggression in boys. Mothers, on the other hand, do not see the internalizing behaviour as problematic (Webster-Stratton, 1996). Mothers are also more likely to talk about emotions with their daughters than with their sons (Eisenberg, Martin and Fabes, 1996), and may encourage their daughters to have concern for others (Keenan and Shaw, 1997) and to problem solve (Nolen-Hoeksema et al., 1995). Girls are often socialized to assume caring and nurturing roles, despite the increased likelihood that they will pursue employment objectives.

Peer influences affect the development of gender-based behaviours and attitudes. Children tend to segregate themselves according to sex — particularly in play groups — and there is some evidence to suggest that girls and boys learn and practise different social and cognitive skills within these groups (Keenan and Shaw, 1997). Peers reinforce gender-typed play and punish cross-gender play and non-normative forms of aggression (e.g. girls who are physically aggressive, boys who are relationally aggressive) (Golombuk and Fivush, 1994; Crick, 1997).

Early childhood educators are important socializing agents for children. Educators' assumptions about gender help to shape children's perceptions of, and interactions with, boys and girls. While there is increasing awareness among teachers and other educators about the impact of early gender-based expectations on children's development, a number of studies have found that teachers tend to react differently to boys' and girls' problem behaviours (Keenan and Shaw, 1997).

The media, including children's literature, help to enforce gender stereotypes. Several researchers have found that the content of much TV programming is "heavily male-oriented, and depicts sex roles that are often stereotyped and distorted" (Luecka-Aleksa et al., 1995, p. 774). The same may be said of sex-role portrayals in children's literature (Golombuk and Fivush, 1994).

The mass media also play an important role in creating and reinforcing attitudes and values about gender roles, sexual attractiveness and body ideals. For example, media images cast the female body ideal as tall, extremely thin and attractive, and foster an internalization of often unattainable ideals in girls and young women.

Overall, girls develop more quickly than do boys. From the time they are born, girls are more physically developed than boys, an advantage that continues throughout early childhood.

Gender, power and violence.

Gender roles and the gender "script" imposed by society have a powerful impact on youth behaviour, especially concerning issues such as safe sex and coercive or early sexual activity. Women are often conditioned to assume a submissive role and may not feel able to insist on safe sex practices. At the same time, women are given most of the responsibility for preventing pregnancy and STDs (Kinnon, 1994). The situation may be exacerbated when cultural factors are present. According to one study, one third of Aboriginal women said they were afraid of being abused if they refused to have sex with a partner (Aboriginal Nurses Association of Canada, 1996, p. 34).

The effects of violence may be exhibited differently between the sexes. One study suggested that, in terms of social-emotional development, physically abused boys show more "externalizing" behaviour, such as aggression, while girls demonstrate more "internalizing" behaviour. Young girls who are sexually abused may also be more likely than young abused boys to exhibit cognitive and academic difficulties (Trickett and McBride-Chang, 1995).

A recent review of the literature on children and youth who witness familial violence has revealed gender differences in children's reactions. Boys tend to react with more overt violence, whereas girls tend to become more dependent and timid. Furthermore, children who witness violence in the home are more likely to be involved in violent relationships as adults. Whereas girls may be more accepting of violence in their relationships, boys are more likely to be the perpetrator (Suderman and Jaffe, 1997).

Conditions and Trends

Males have higher rates of injury, death and disability.

A variety of gender-related differences in health status have been demonstrated among Canadian children and youth. Mortality rates are higher for males than for females in all age groups, but particularly among 15- to 19-year-olds, where the rates are 96 per 100,000 and 34 per 100,000 respectively (CICH, 1994, p. 87).

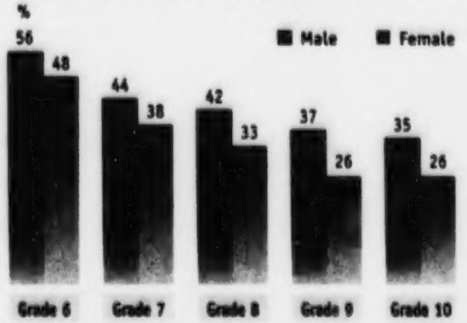
Hospitalization is more frequent for males of all ages. During adolescence, the most common reason for hospital admission for males is injury (32%); for females, it is pregnancy (39%) (CICH, 1994, p. 91). Although females are more likely to attempt suicide, males are much more likely to die from their attempts (CICH, 1994, p. 97).

In general, disability rates among young people under age 20 are higher for males (7.9%) than for females (6.3%) (CICH, 1994, p. 151). The gap is wider for young people with learning disabilities, which are twice as common in males than in females, and with behavioural and emotional conditions, which are three times as common in males (CICH, 1994, p. 154).

Females rate lower on well-being and body image.

Female adolescents consistently score lower than males on all indicators of well-being. Rates of depression are higher among females than males (52.4% vs. 35.9%) (Fleming, Offord and Boyle, 1989). Among 13- to 16-year-olds, 55% of females and 48% of males reported feeling stressed (CICH, 1994, p. 74; Holmes and Silverman, 1992, p. 22). A study by the Canadian Advisory Committee on the Status of Women found that more males than females reported feeling good about themselves (45% versus 30%), having a number of good qualities (43% versus 31%), and being self-confident (33% versus 22%) (Holmes and Silverman, 1992, pp. 12–13). A study of students in grades 6 to 10 found that, for every grade, more males than females felt happy about their lives (King, Boyce and King, 1999, p. 45). See **Exhibit 11.1**. Comparisons with results from the mid-1980s show that the gender gap on these measures widened in the early 1990s (CICH, 1994, p. 96).

11.1 Proportion of students in grades 6 to 10 who report feeling "very happy" about their lives, by grade and sex, Canada, 1997–98



Source: A.J.C. King, W. Boyce and M. King (1999). *Trends in the Health of Canadian Youth*. Catalogue No. H39-498/1999E. Ottawa: Health Canada, p. 45.

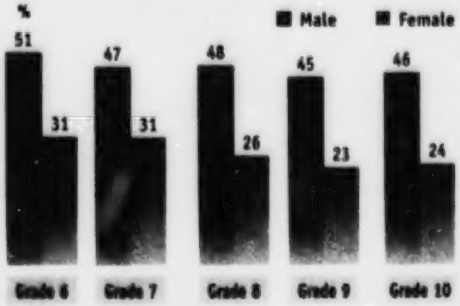
Girls are particularly concerned with body image. Adolescent girls are much more likely to report wanting to lose weight than are adolescent boys. One recent study revealed that 29% of girls aged 11 wanted to lose weight, compared with 19% of boys at the same age. At age 13, the gender gap widened, with 41% of girls and 21% of boys expressing a desire to lose weight (King, Boyce and King, 1999, p. 70).

There are differences in personal health practices.

Differential health practices play a role in the overall health of males and females. Boys are more likely than girls to engage in physical activity. In fact, adolescent boys spend about 50% more energy on physical activities than do girls (CFLRI, 1997, p. 2). As **Exhibit 11.2** shows, a higher proportion of male students than female students in grades 6 to 10 said they exercise four or more times a week (WHO, 1999). However, there is evidence that girls' level of activity is on the rise (CCSD, 1997, p. 37).

The incidence of smoking among 15-year-old women has increased in recent years, from 18% in 1990 to 21% in 1998. This trend suggests that young women are increasingly experiencing severe social strains (King, Boyce and King, 1999, p. 95).

11.2 Proportion of students in grades 6 to 10 who report exercising four or more times a week, by grade and sex, Canada, 1997–98



Source: WHO (1999). *Health Behaviour in School Age Children Survey, A World Health Organization Cross-National Study, 1997-98.*

The risk of abuse is higher for girls.

It has been estimated that 25% of girls and 10% of boys will be sexually abused before the age of 16 (Finkel, 1987, p. 245). Girls are more often the victims of assault by family members than are boys. In one study, girls were the victims in almost 80% of the cases of assault in which the perpetrator was a family member (Statistics Canada, 1998, p. 22).

Gender not only influences the likelihood of a child being victimized, but also the nature of that victimization. A 1995 study of self-reported maltreatment revealed that physical abuse was reported by 44% of female adolescents (14 to 18 years of age), compared with 33% of male adolescents. Moreover, a further 28% reported experiences of sexual abuse compared with 0% of male adolescents (Manion and Wilson, 1995, p. 15).

More boys than girls drop out of school.

Adolescent males are more likely to drop out of school than adolescent females (17% and 11%, respectively). The three most common reasons for school drop-out for both males and females are boredom, preferring work to school, and problems with school work and teachers (Statistics Canada, 1993, p. 27). However, girls are more likely than boys to "drop" in level of school performance as they move into adolescence, especially in maths and sciences.

Gender and Other Determinants

Education

In 1995, 30% of young women (aged 22 to 24) without a high school diploma were unemployed, compared with 17% of men (HRDC and Statistics Canada, 1996, p. 5). Overall, women's level of education is increasing — in 1992–93, they represented 53% of all undergraduate students, 46% of all master's degree students and 35% of all doctoral students (Normand, 1995, p. 19). However, young women remain underrepresented in physical science courses, undergraduate engineering and applied sciences.

Personal Health Practices

Physical appearance is a key concern for many female adolescents struggling to maintain a positive self-image. Young women with negative body image have a higher risk of engaging in disordered eating behaviours than those who are not concerned with image. Low self-esteem among boys and young men has been linked with the use of anabolic steroids (King, Boyce and King, 1999).

Individual Capacity and Coping Skills

According to the NLSCY, in 1994–95 the highest rate of emotional and behavioural problems was among boys aged 8 to 11 and the lowest was among girls aged 4 to 7. In fact, all prevalence rates of disorders were higher for boys than for girls. While more young women than men attempt suicide, young men are much more likely to complete the attempt (CICH, 1994, pp. 75, 89).

Genetic and Biological Factors

Boys and girls are at different risk for certain types of disabilities and disorders. For example, boys are at greater risk than girls for developmental disorders such as autism (Bryson, Clark and Smith, 1988) and behavioural conditions such as attention deficit and conduct disorder (Offord, 1987). However, girls are at much greater risk of developing depression and eating disorders in adolescence (Cicchetti and Toth, 1998).

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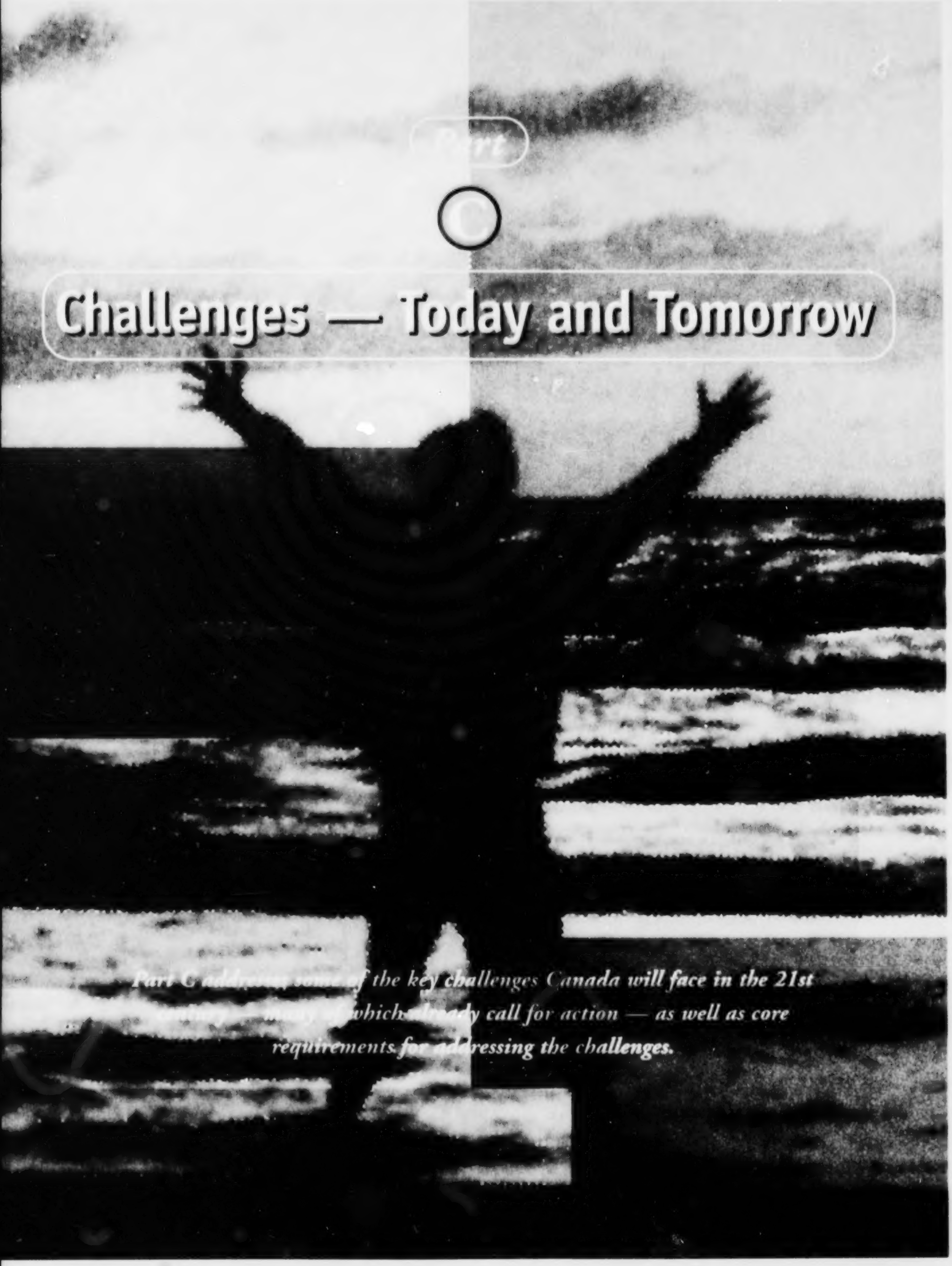


Part C

Challenges — Today and Tomorrow

Part C addresses some of the key challenges Canada will face in the 21st century — many of which already call for action — as well as core requirements for addressing the challenges.

Chapter

12

Challenges

Overview

We all want the best for our children. However, in a changing world that is growing more and more complex, achieving this is neither predictable nor assured. Our children's world holds much promise: the United Nations Convention on the Rights of the Child, the electronic revolution, longer life expectancies, and access to the world through telecommunications and travel. At the same time, children in our society face the threat of exposure to environmental pollutants, violence, pressures of time and money, and an increasingly global economy that demands a highly skilled work force. Today, as in most generations, children at all income levels and in all ethnic groups face a combination of opportunities, stresses and threats that were inconceivable just 50 years ago.

The purpose of this section is twofold: to provide a summary of and stimulate thinking around trends selected from among those presented in the previous chapters that will likely affect the future of child health. Understanding the forces that shape young people's health involves a look at the determinants of health, including the physical, family, school, community and workplace environments, and the obstacles presented by poverty. As a starting point, several crosscutting issues will be considered: child development, the population health model, the inter-sectoral approach, decentralization, globalization, the Information Age, aging of the population, and children's perspectives. These issues are complex and far reaching; in fact, our understanding of the effects of some of these issues may take years to emerge.

Although most children grow up healthy, and numerous indicators of their well-being reveal many successes — including infant mortality rates that are at a record low and test scores in reading and science that are among the highest in the world — a number of other indicators paint a picture of shortcomings, such as increased violence and suicide among youth. The isssues and problems related to the healthy development of children and youth are magnified for the Canadian Aboriginal population. Our grasp of the future of young people's health needs to be grounded in an understanding of a wide range of influences or determinants that may support or compromise their health. This understanding is key to our being able to take action and make decisions that will lead to the improvement of the situation for Canada's children and youth and their families.

Overarching Issues for the 21st Century

Child Development

Research shows that an adult's health is strongly linked to his or her early childhood experiences (Federal, Provincial and Territorial Advisory Committee on Population Health, 1998, p. 2). It follows, then, that getting off to a good start is critical to a child's general well-being. The two decades of transition from the helpless newborn baby to the independence of an adult are characterized by periods of enormous change. Each of these transitions can be viewed as windows of opportunity for influencing future development. It has long been acknowledged that early health promotion and protection reap benefits later on in a person's life. An extensive body of knowledge regarding child development is available which allows us to plan ways and means of influencing optimal development (Keating and Hertzman, 1999).

We are learning more and more about how the environment affects brain development. For instance, sophisticated scanning technologies are increasingly shaping our capacity to visualize the way the brain is "wired." This has shed new light on the vulnerability of brain development to environmental influences — it is more so than we ever suspected (Guy, 1997, p. 6). While heredity and genes do play a role, the subtle interplay between genes and the environment means that the developing brain of a fetus is susceptible to damage from environmental factors ranging from maternal malnutrition, drug abuse, toxic substances (alcohol and environmental tobacco smoke), metals, and chemicals (pesticides) to viral infections. We now know that the brain development that takes place from conception onward is more rapid and extensive than previously realized and the influence on later brain development is long lasting. Clearly, investment in early child development is critical as these experiences have a long-lasting impact and contribute to lifelong health. Healthy children who become healthy adolescents are likely to become healthy adults.

Children are often referred to as a homogenous group. However, the experience of growing up is immensely varied and individual and is punctuated with several sensitive and critical developmental phases (Federal, Provincial and Territorial Advisory Committee on Population Health, 1998). It is generally agreed that children's physical, emotional, intellectual, social and moral development is a gradual process that begins in the early years and continues well into adulthood (Guy, 1997). The period before birth and early childhood is referred to as "the investment phase" for healthy child development, and is marked by opportunities to build language skills, coping skills, a sense of self, and physical and mental health (Hertzman, 1994). The period between ages 6 and 18 is referred to as "the enhancement phase," during which physically, socially, intellectually, psychologically and emotionally young people develop their own values, attitudes, beliefs and behaviour patterns and strengthen their sense of identity. During this phase, intervention may be required if problems arise (Federal, Provincial and Territorial Advisory Committee on Population Health, 1998, p. 7). In addressing a child's health, it is important to be clear about the stages of growth and development attained by the child. To ignore the complex aspects of development would be a disservice to the child.

Population Health

The idea of population health has come of age in the latter part of this century, and with it tremendous implications for the future of child health. Over the last decades there has been competition between those who believe that the resources and programs to achieve health should be allocated to medical care or to those at-risk and those who advocate for prevention and the promotion of optimal health for all. For example, there are those who strive to find the latest technology to cure a child with a disability, and those who work to promote a healthy environment for child development and to prevent the existence of children with disabilities. A good case in point is the improved survival of low birthweight infants, many of whom are born premature. Some argue that the survival of these infants is gained by means of expensive medical technologies and at the expense of efforts to prevent low birthweight (Miller, 1984).

The population health approach suggests that the health of our children cannot be achieved by concentrating on the health-care system alone, but must also be associated with changes in larger societal issues. The health of children is profoundly influenced not only by the health-care system but also by factors or determinants of health such as income and social status, social support networks or social environments, education, employment, physical environment, genetic endowment, coping skills, gender, culture, child development and individual health behaviour.

It is important to note that the population health model extends beyond the notion that individuals are responsible for their behaviour and health. Earlier concepts of health held this premise — it is our fault if we smoke, do not parent well, are under stress from work, or can't find a job. Although we are responsible for our deeds, influences upon our health are much more complex. For instance, one cannot blame a parent alone for allowing her/his children to have sweets and empty-calorie foods, while failing to hold accountable the supermarket for placing candies at the checkout counter, the advertiser for creating the demand, and the manufacturer for making the product. Similarly, we cannot hold a single parent solely responsible for the well-being of her/his children if she/he lives in a neighbourhood with no green spaces, no grocery store, limited public transportation and recreation facilities and overcrowded classrooms for her/his children.

According to the population health model, what allows a person to flourish and be healthy extends beyond individual behaviour and includes a wide range of societal determinants. Individual actions can be singled out, but there is a need to look past individual behaviour and broaden our approach to include all the other determinants of health discussed in this document.

Societal beliefs that the health-care system is the major contributor to determining healthy children are gradually changing. In fact, the whole concept of health is undergoing a rethinking. The perspective is shifting from viewing health as the absence of disease to a dynamic equilibrium created by a balance of the factors or determinants. However, in the current health system — which is based on the traditional medical model — the financing of health care and professional training still dominate. We need better balance in the system — with prevention playing a greater role — in order to achieve a truly comprehensive approach to addressing child health needs.

An Inter-sectoral Approach

To address the health of children a broad, collective effort is required that involves multiple stakeholders from all sectors that deal with children. Children's health issues reach into every aspect of a child's life and, considering the vast domain of health determinants, the list of partners is extensive. These include, for example, parents and families, the school system, the judicial system, health and social agencies of provincial, federal and municipal governments, religious, recreational, child-serving and community organizations, and the business community. Many of these partners have not traditionally worked together and will need to overcome the challenges of different philosophies, different priorities and different constituencies.

Decentralization

A discussion of children's health in the coming decade (or in any decade) must include political decisions. The impact on child health of decentralization of power to the provinces and in turn from the provinces to the municipalities is not clear; however, it is likely to weaken the federal government's ability to influence healthy child development. Also, the introduction of the Canada Health and Social Transfer (CHST) — a block transfer of money to the provinces for health, post-secondary education and social services — has been described as a threat to the health, development and future productivity of Canada's children and youth (Steinhauer, 1995). And while coping with the challenges of controlling deficits and eliminating debts, it will be difficult for agencies and municipalities to respond to social, health and educational demands. As devolution from the federal government continues, forcing provincial and municipal restructuring, the future of community and social services may remain uncertain. However, as deficits come under control and debts are reduced, governments at all levels may be able to strategically reinvest in key services to support the healthy development of children and youth and their families.

Globalization

The trend towards globalization and free trade is likely to have many positive developments, such as increased educational and economic opportunities for the children of today. However, it will also generate new hazards to the health of children. One example is the increased availability of imported consumer products that have not passed certain standards designed to protect children from unsafe items. Examples include imported miniblinds (containing lead) and vinyl toys (containing phthalates). As our economy becomes more integrated into the global economy, consumer product protection for children and their special vulnerabilities must be provided consistently. Also, in a market-driven economy it will be important to ensure that the rights of children to protection, education and play are adequately respected, and that children in other countries are not exploited for economic reasons (Canadian Heritage, 1991).

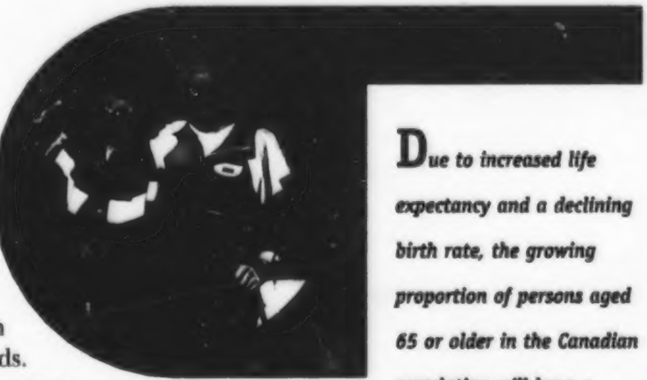
The Information and Communication Age

Advances in information communication offer numerous benefits including rapid communication and information retrieval. Technologies such as the computer and the Internet are transforming the way we live, work, learn and relate to others. Computers have markedly increased capacity to process and analyze data; however the capacity of the human mind to absorb and process this information has not changed.

Given the rapid permeation of computers into children's lives, both in and out of school, the possible impact of technology on children's health is not fully understood. Computers have the capacity to reshape the traditional nature of learning. As these tools become part of a child's life in public institutions, libraries and the home, we will need to develop a better understanding of the risks against which children must be protected. For example, advertising is increasingly targeted at children; the Internet may lead to increased exposure to pornography and sexual exploitation, hate literature and violence. New technologies will radically change the way children spend their leisure time, the way they learn and the way they communicate with others. Increased time in front of the computer may mean fewer hours of physical activity or less social interaction.

Also, these technologies have the potential to create a gap between families that are information poor and those that are information rich because children from poor families are less likely to have access to computers, E-mail and the Internet. However, increased availability and accessibility of computers in the school and the community may be able to compensate somewhat for this trend.

The Aging Population



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Due to increased life expectancy and a declining birth rate, the growing proportion of persons aged 65 or older in the Canadian population will have a profound effect on society and children. By the mid-21st century, it is predicted that seniors will outnumber children and youth, which may increase competition between the two groups for public funds. Societal beliefs view the needs of seniors as a collective responsibility that is shared by family and government, whereas the upbringing of children is seen as a private matter left to the family.

Perhaps concerns for children appear less prominent because seniors, unlike children, are a political force represented by lobbying groups. Unfortunately, concern for children and elders in our society quite often focuses on issues of separation and isolation. An intergenerational response is a good antidote to the tendency to segregate people by age. Bringing the generations together should be based on the values of equity and social justice and not on economic and political lobbying forces (Good, 1995).

Children's Participation

Until recently, asking children what they will need in the future to become healthy adults has not been a priority. Children's views are infrequently sought and they rarely participate in the planning and development of policies and programs that address their needs. This oversight occurred because children traditionally have not been consulted even about matters that concern them and because children are among the most powerless of social groups (Mullen, 1981): they don't sit on influential committees, most of them cannot vote, they lack lobbying clout, and attempts to involve them as active participants are few.

But it is important to realize that children have insight into the behaviour of other children and see the world as other children see it (Mayall, 1997). In addition, they have views on what makes them healthy (Health Canada, 1993), and on what makes their communities, schools and streets safe and better places in which to live (Guerin, 1988).

Having signed (1989) and ratified (1991) the United Nations Convention on the Rights of the Child, a comprehensive international children's rights instrument, Canada agreed to provide children with the right to express their views and have their views considered, to recognize their capacity, motivation and ability and to encourage them to become active participants in our society (Canadian Heritage, 1991). In the coming years, a key goal is to encourage all sectors of society to be responsive to the views of children and youth and increase their meaningful participation in their communities and in the programs targeted at their health and well-being. The report *The Progress of Canada's Children* (CCSD, 1998a, p. 5) shows that more communities are attempting to find a way to involve youth in their communities in a meaningful manner when planning programs and services targeted at children and youth.

Conditions and Trends

At the beginning of the 21st century, a logical vision for the future is to ensure that Canadian children and youth see an improvement in their health and well-being. Although this may sound fresh and innovative, valuing all children and youth in Canada and sharing responsibility for their healthy development is not a new concept (Health Canada, 1995; Federal, Provincial and Territorial Advisory Committee on Population Health, 1998). As in the past, a number of overarching issues may create barriers to realizing this vision, despite our best efforts. Collaborative efforts between various sectors remain critical to effecting this vision as we approach the millenium and grapple with a changing and increasingly complex world.

The following section serves to highlight some of the key trends contained within this document and to identify areas where collaborative efforts could be focused.

Income and Social Status

Child and family poverty

One child in five lives in poverty, and poverty rates among children and families have increased 60% since 1989 (Campaign 2000, 1998). Whether poverty is defined by income, occupation, social class or education, there is a direct link between those factors and youth and child health and development (Hertzman, 1999). The poverty literature is replete with statistics linking poverty to greater risk of health problems, disability and death (CICH, 1994; Vanderpool and Richmond, 1990; Evans and Stoddart, 1990). Children who grow up in poverty are often less likely to be able to learn, are more likely to be rated as performing at a lower level by teachers, and are more likely to drop out of school, have conduct disorders, emotional problems, trouble with the law, and engage in risk-taking behaviour. In fact, poverty is recognized as the single most significant determinant of health status of children (Evans and Stoddart, 1990).

Conclusion: Child poverty impacts on the present and future health and well-being of children and their families. Children are poor because their parents are poor. Therefore, efforts that support adequate income, employment opportunities, appropriate training and/or post-secondary educational opportunities, and accessible and comprehensive health and social programs will be essential to promoting the healthy development of children. Addressing child poverty will be a key challenge in the 21st century.

Income distribution

In a similar way, the health and well-being of a population is determined by the way society distributes its wealth. The way in which income and wealth are distributed in Canada is far from equitable. There has been a trend of growing inequalities between high- and low-income earners in Canada (Statistics Canada, 1997). The population health literature shows that the populations of countries in which the gap between the rich and the poor is smaller have longer life expectancies (Evans, Barer and Marmor, 1994). Conversely, countries with wider social inequalities have a less healthy population. Studies in industrialized countries show that mortality rates for children are related not only to poverty but also to widening social inequalities in wealth (Krieger, Williams and Moss, 1997).

Conclusion: In order to promote the optimal healthy development of Canadian children and their families, initiatives will be needed to redress the income inequalities between high- and low-income families.

Housing and food security

Although most Canadian families live in housing that is suitable, safe and affordable, and have access to a secure food supply, there remain issues of concern. Housing and food security are particularly fragile for Aboriginal populations, particularly for those living on reserve. In general, low-income families continue to spend a significantly higher percentage of their total expenditures on both food and housing than high-income families. Almost 1 in 10 households is unable to find housing that meets or exceeds national standards (CMHC, 1993). In 1995, approximately 900,000 children received foods from one of approximately 460 food banks across the country (Canadian Dietetic Association, 1996).

Conclusion: The availability and accessibility of adequate, safe, secure and affordable housing, in addition to a safe and nutritious food supply for all Canadian families are essential elements to fostering healthy child development.

Employment and Work Environment

Parents' labour force participation

Paid employment is central to our society. Increasingly, though, people with children are likely to find themselves engaged in part-time employment, typically characterized by low wages, few benefits and high insecurity. Unemployment rates are likely to stay relatively high as the Canadian economy continues to experience tough competition for low-skilled jobs in the world market. Continued economic uncertainty will likely be detrimental to the health of children and their family members and may contribute to poorer physical and mental health as well as increased drinking, aggression, divorce and child abuse (Dooley, Fielding and Levi, 1996).

Conclusion: Availability of stable, adequately paid employment with adequate benefits for Canadian families and availability and accessibility to appropriate education and training opportunities for future employment will be a major challenge for the next century. Providing accessible supports to those outside of the labour market will be important in supporting families in the task of raising healthy, socially engaged children.

Working and parenting

An important change in Canadian family life relates to the amount of time parents spend in the workplace. Today, families frequently need two incomes to survive, which has led to an increase in women's participation in the work force. According to the most recent statistics, more than two thirds of women with preschool children were working outside the home, as were more than three quarters of the mothers of school-age children (Gunderson, 1998). Over the last decade, these figures have not levelled off and will likely continue to increase. Families in which both parents work are facing stresses, fatigue and the double burden of balancing job and family responsibilities. These difficulties are disproportionately experienced by women.

The response to date of government, business and communities to the need for child-care services has been slow (Paris, 1989). While the federal government has considered expansion of child-care spaces, pending agreement from the provinces, there is no national child-care program. If the lack of support from the governmental, private and public sectors continues, fewer children will receive the appropriate support, nurturing and stimulation they require during the earliest and most critical years of their development and will lack the foundation for later school and work success.

Conclusion: Since it is likely that the majority of Canadian families will continue to have both parents working in the 21st century, parents, and particularly women, will need a supportive environment in order to have healthy, well developed families. Efforts will need to be directed to overcoming the parental "time-crunch" by promoting more flexible and balanced, family friendly work places and by developing a variety of quality child-care services and family resource programs accessible to all.

Youth employment

The unemployment rate is much higher among the youth population than the general population. Unemployment is most noticeable among young people who do not complete secondary school, and is particularly problematic for young female high school drop-outs (Human Resources Development Canada and Statistics Canada, 1996). A clear link has been established between higher education and employment. Individuals who attain post-secondary education are more likely to obtain higher paying and secure jobs, which may also improve their chances of more positive health outcomes.

Youth participation in the work force is at its lowest point in 25 years; youth employment rates are affected by business cycles and structural changes in the economy. Given the economy of the 1990s, young people express discouragement about employment opportunities and are acutely aware of the importance of education and adequate skill development in preparing for future success. While students who work more than 15 to 20 hours per week are at increased risk of poor school performance and unhealthy lifestyles, those who work a moderate number of hours per week or who work only summer jobs seem to flourish (CCSD, 1998b). There is concern that, increasingly, teens have fewer opportunities to acquire job skills, to earn their own spending money, or to earn funds for their post-secondary studies. On the positive side, volunteer rates among teens and young adults have increased dramatically over the last 10 years, providing many with job-like experience (CCSD, 1998b).

Conclusion: Since youth employment develops employability skills and experience for future employment, the availability and accessibility of entry level jobs on a part-time and short-term basis will continue to be critical for their future employment prospects. Creating supportive links among the education communities, workplaces and community organizations may help give youth greater opportunities to gain both work experience and contribute to their community. In addition, opportunities for young people to return to the formal education system in order to complete, upgrade or change the direction of their education will continue to be important for improving future prospects for their health and well-being and that of their families.

Education

Education provides one of the best paths to increase a person's chances of achieving full participation in society and increased economic security, and of gaining meaningful and adequate employment.

The trend toward a knowledge-based economy will have a decisive influence on the need for higher education. Without this higher education, the future success of the young will be compromised and some groups will be left behind. Aboriginal people and people raised in a low-income family are at increased risk of lagging behind. Although Aboriginal children have experienced substantial gains in their education, they still experience inequalities compared with non-Aboriginal students (Statistics Canada, 1993).

School readiness

The first years of life are vital. Early childhood is a critical time to acquire the basic language, intellectual, interpersonal, and social skills that will determine the well-being of a child and determine adult competence. While most children who enter school are ready to learn, some children, such as those living in poverty, are less well equipped. Likewise, while most children arrive at school ready to learn every day, those who are hungry, tired, afraid, or stressed over family, personal, school or financial problems will often have difficulty concentrating and learning.

Early and preschool learning opportunities should be encouraged and effective programs extended to equip children with basic learning skills, self-esteem, and social abilities before school entry. Investing in preventive and remedial measures for children in early life is more effective than measures introduced in adulthood.

Conclusion: Since school readiness is an indicator of future school achievement, employment status and subsequent socioeconomic level, measures will be needed to ensure that all children have the opportunity to participate in stimulating early and pre-school learning activities. Early identification, intervention and remediation initiatives are required for children and youth with school and learning-related problems to address challenges and ensure healthy development.

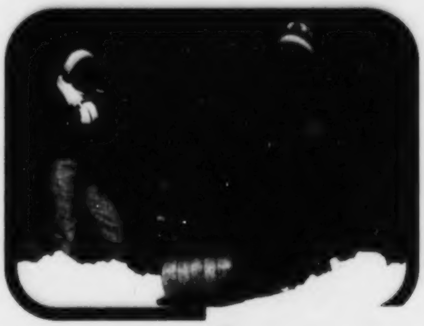
Staying in school

Staying in school is a good passport for life and more and more children are choosing to do so. Early school leaving has declined over the past few decades suggesting that today's youth will be more employable and better able to meet both their needs and those of the global market (Normand, 1995). Unfortunately, given the steady increase in tuition fees of higher learning institutions, many of these young people may not be able to continue their post-secondary studies. In addition, the reduction in student grants in favour of loans means that those who decide to pursue higher education will also accumulate a substantial debt after the completion of their degree.

Conclusion: Since educational attainment, employment and socioeconomic status are such closely interrelated determinants of health, availability of and equitable access to educational institutions will continue to be critical for the future health and well-being of Canada's children and their families. Children from some population groups, such as Aboriginal children, those from low-income groups or immigrant groups, may need extra support to be able to stay in school.

Social Environment

Family health and well-being are at the heart of healthy child development. The love and affection parents give their children in the early years will often have a great impact on a child's developmental outcome. Similarly, early intellectual stimulation such as being spoken to and read to will influence a child's learning abilities and language skills. Children who have someone to play with are less likely to have difficulty adjusting socially. Whatever parenting approach is employed, children need love and consistent attention from their parents. Children whose parents participate in their development (attend school performances, help with homework, attend sports events) tend to have higher scholastic achievement, higher aspirations, and more positive relationships with teachers (CCSD, 1997).



Family environment

Remarkable social and demographic changes have transformed the family. While the dominant family structure still consists of a married couple with children, and most children live in families with married parents, an increasing number of children live with one parent and more families are breaking up or being reconstituted. Over the last three decades, Canada's divorce rate has increased more than fivefold. These rates will continue to increase if the patterns observed in other countries occur in Canada (Richardson, 1996). For instance, approximately 30% of Canadian marriages end in divorce, compared with about 44% of American marriages (Dumas, 1997).

Child development literature is replete with evidence that the family environment is a key influence on a child's health and well-being and that parental love and attention, stability and consistency in the home are tremendously important in determining what happens to a child. Parental break-ups impact on the family — how members relate to each other, and how parents cope with the developmental, educational and recreational needs of their children. Although most children of divorced parents show normal patterns of growth and development, for some children, the experience will undermine their development. It seems that, as a group, children of divorced parents have more problems with respect to mental health, self-esteem, school performance and confidence in their future performance compared with children who come from intact homes

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or live with a widowed parent (McClosky, 1997). Divorced fathers can lose contact with their children; research in this field shows that when fathers are absent, their children can experience a considerable range of effects such as dropping out of school, becoming a teen mother, or experiencing long-lasting feelings of betrayal, rejection, rage, guilt, and pain that can lead to depression and suicide (Hewlett and West, 1998). Rising divorce rates and family breakdowns may lead to instability among those children at risk of poor adjustment.

Conclusion: Strengthening and supporting various family formations in their child-raising roles will continue to be a key challenge. School and community-based programs that offer information on parenting, child development and support services available, as well as early intervention programs, will remain essential. Moreover, initiatives that affirm that parenting is not the sole responsibility of families, but also a societal responsibility, will become more important.

Family violence

Child abuse and neglect, emotional abuse and sexual abuse are manifestations of violence against children. While national data are not currently available, measures are under way to establish a better estimate of incidence (Phaneuf and Tonmyr, 1998). A recent study suggests that current statistics probably underestimate the true level of sexual abuse suffered by children in Canada (Holmes and Slap, 1998). It is estimated that violent behaviour against children is high and the rates are likely to increase if children grow up in situations that involve poverty, inadequate housing, dysfunctional families, substance abuse, and pervasive violence in the schools and on television.

Conclusion: Reducing violence against children through community awareness and prevention programs will remain a key challenge in the new millennium. Some positive steps in addressing violence for those in greatest need could be community-based parenting programs and home visiting programs that focus on positive parenting skills and socialization in early childhood. In addition, conflict resolution, violence prevention and social skills development programs, along with community supports, could help children and families at risk of violence develop in a healthier manner.

Natural and Built Environments

Exposure to chemical and biological hazards

The effect of environmental contaminants on children's health is attracting more and more attention. Environmental issues are increasingly gaining public attention, scrutiny and active participation (International Joint Commission, 1997; Slovic et al., 1993). While there is recognition that children are at special risk compared with adults, testing for the effects of chemicals upon children is still in the early stages (Committee on Pesticides, 1993).

Environmental health threats to children include contaminants in the ambient and indoor air, food, water and soil. The following are examples of these contaminants: second-hand smoke, biological contaminants such as moulds and house dust mites, heavy metals such as lead, and chemicals such as pesticides and PCBs. Children exposed to such contaminants may be at greater risk of health problems including respiratory diseases and asthma, behavioural and learning problems, and delayed development (Committee on Health, Safety and Food, 1997).

Conclusion: Governmental standards to control and monitor pollutants in air, water, food and the built environment need to be developed and set with the enhanced vulnerability of children in mind.

Information programs for parents which stress the importance of a healthy indoor environment and the need to reduce exposure in the home to second-hand smoke, chemicals and biological allergens from dust, pets, pests or moulds need to be available and accessible to all Canadian parents, including those with low literacy skills and disabilities. Regulations, standards and policies in place for other public spaces such as schools, recreation facilities, transportation facilities, parks and playgrounds will need to be enhanced, monitored and enforced.

Unintentional injuries

The built environment, which includes the home, schools, parks, playgrounds and playing fields, carries a significant risk of occurrence of injuries for children. Definite improvements have been made regarding injury death and hospitalization rates compared with prior years. Nevertheless, injuries, including those resulting from falls, drownings and traffic accidents are the leading cause of death among children above the age of 1 (CICH, 1994). Injury deaths should be thought of as the tip of the "injury iceberg"; although they represent only a small portion of total injury-related outcomes, they are the most obvious and perhaps most dramatic consequence of injury; the majority of the iceberg, however, is the less obvious, submerged portion — the non-fatal injuries, which result in higher health-care and personal costs (Angus et al., 1998).

An important risk factor that contributes to childhood injuries is poverty. Children who are poor are at higher risk of injury because they typically are exposed to a more hazardous environment (e.g. living in firetrap houses, playing in the streets) (Rivara, 1994). There are dangers that widening income gaps and deepening child poverty in Canada may be associated with increasing rates of injury.

Most injuries can be prevented and success in injury prevention has been noted (Health Canada, 1997). However, there is an unfinished agenda and the problem remains of epidemic proportion.

Conclusion: Since more unintentional injuries occur at home than anywhere else, particularly for very young children, increased governmental regulation to enhance the safety of products and toys found in households and increased parental awareness of safety at home are needed. Outside the home, promoting safety standards in schools, parks, playgrounds, in traffic areas and other spaces where children live and play is equally important. Educating children and youth about traffic safety, from an early age, may further decrease traffic-related injuries.

Personal Health Practices

Positive, health-promoting behaviours are a major determinant of child and youth health and are also important for the future health of our children as adults. Many disabilities and chronic health problems of adults can be traced to negative health behaviours entrenched during childhood and adolescence (Committee on Health, Safety and Food, 1997). Adolescence is the period most likely associated with the onset of smoking, alcohol and drug consumption, early and/or unprotected sexual intercourse, and a more sedentary lifestyle.

Smoking in childhood and adolescence

The total number of Canadians who smoke has decreased since 1981 (Statistics Canada, 1995). While the prevalence of smoking has been declining in the adult population, it has been increasing in the teenage population (Statistics Canada, 1995). In recent years, the incidence of smoking among women aged 15–19 increased, from 18% in 1990 to 21% in 1998 (King, Boyce and King, 1999).

Unfortunately, despite many efforts to restrict youth access to tobacco, peer disapproval of cigarette smoking and the proportion of students who see smoking as dangerous have both declined (Forster and Wolfson, 1998). The tobacco industry continues to advertise in magazines and to glamorize tobacco use through the popular culture, sports and films. We may expect to see a continued increase in smoking rates among youth as long as government initiatives lack effective enforcement. As a result, over the long term, lives lost to heart disease, low birthweight babies, and asthma rates will likely continue to increase or remain steady.

Conclusion: Efforts to prevent smoking among pregnant women, and children and youth — in particular teenage girls — will require a comprehensive approach involving all levels of government from all relevant sectors, including families, schools, the business community, community organizations and youth themselves. While government initiatives such as setting and enforcing age limits for purchasing tobacco products, preventing young people from being exposed to all forms of tobacco advertising, and increasing the price of tobacco to discourage young people from smoking are of key importance, these initiatives need to include not only policies and legislation, but the whole continuum of policies and programs from health promotion and primary prevention programs to cessation and the enforcement of current regulations.

Early and unprotected sex

Major changes in the sexual behaviours of adolescents have occurred over the past several decades. Sexual activity is occurring at younger ages. The average age of the initiation of sexual activity is now below age 13. It is estimated that 12% of young women have engaged in sexual intercourse at least once before the age of 15. The figure increases to 83% of young women (those aged 15 to 19) who report having had one sexual partner in the past year (CICH, 1994). It is estimated that more than half of young people use a condom the first time they have sex (Otis 1995, as cited in Godin and Michaud, 1998). But it is somewhat alarming that the majority of young women do not use a condom

(Galambos and Tilton-Weaver, 1998); moreover, one in four women between 12 and 14 years of age who are sexually active use no form of birth control, increasing the risk of pregnancy (CICH, 1994).

Conclusion: Efforts to address the impact of early onset of sexual activity and unprotected sex include adequate, age appropriate sex and reproductive health education that is both biologically and skills based. It is important to provide accessible information about methods of contraception that is adapted to promote healthy adolescent development. It is equally important to focus on the various social and emotional aspects of a sexual relationship such as communications and mutual respect and understanding.

Teenage pregnancy

Although the teenage pregnancy rate in Canada is lower than it was 20 years ago, the rate has remained relatively stable since the 1980s (CICH, 1994). Of concern, however, is that the rate in Canada continues to be higher than that of many other industrialized countries (CICH, 1994). This is cause for concern given its association with adverse social, economic and health outcomes. For example, a teenage mother is less likely to seek prenatal care (the absence of which may lead to adverse birth outcomes) and is more likely to drop out of high school and live in poverty.

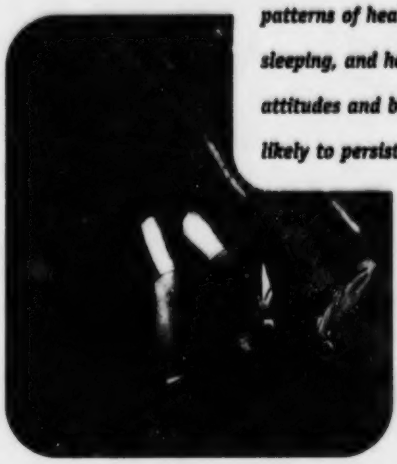
In addition, the reproductive health needs of adolescents as a group have been largely ignored. For example, young women may be reluctant to seek birth control due to the stigma of promiscuity associated with contraceptive preparedness. Moreover, accessibility to birth control is sometimes restricted if the physician must obtain consent from the young woman's parent or guardian to prescribe contraceptives.

Conclusion: Young people need to be educated about healthy sexuality and the biological, physiological, social, emotional and economic risks associated with pregnancy during adolescence. In addition, it is essential to provide a range of education and support services to teenage mothers before, during and after the child is born to assure optimal child development.

Physical activity during childhood regulates weight, increases self-esteem, knowledge, influences patterns of healthy eating and sleeping, and helps establish positive attitudes and behaviours that are likely to persist into adulthood.

Physical activity in childhood and adolescence

The relationship between regular physical activity and positive health outcomes is well established (Simons-Morton et al., 1988). Regular exercise protects against a number of chronic diseases. In addition, physical activity during childhood regulates weight, increases self-esteem, knowledge, influences patterns of healthy eating and sleeping, and helps establish positive attitudes and behaviours that are likely to persist into adulthood (Simons-Morton et al., 1988).



It is generally accepted that physical education programs within the school curriculum help children learn, value and develop an interest in physical activity. Unfortunately, current cuts in physical education and increases in user fees for community programs will likely impact negatively on the risk of chronic illnesses such as cardiovascular diseases, and affect the risk of short-term outcomes such as obesity and poor self-esteem.

Conclusion: Efforts need to be directed toward the development and implementation of strategies that encourage children at a very young age and their adult role models to adopt a physically active lifestyle and maintain that lifestyle throughout their development. Families need to have affordable activities available and accessible within their communities in order to encourage participation in regular physical activity. In addition, relevant and interesting physical activities need to be available and accessible to young people throughout their development, even through the adolescent years. At minimum, quality daily physical education at primary and secondary schools needs to be maintained.

Individual Capacity and Coping Skills

Mental well-being

Health threats to children have changed dramatically over the past 50 years. We have traded the biological concerns such as infectious diseases for "quiet conditions" that do not rush children to the emergency departments. Once dismissed as a parental responsibility, mental well-being problems include behaviour problems, learning disabilities, and depression/suicide (Vanderpool and Richmond, 1990). Mental disorders are inextricably linked to a range of disruptive determinants such as family distress and dysfunction, lack of social supports, economic insecurity, and poor parenting.

Most Canadian children are free of psychiatric disorders. However, an estimate of the magnitude of mental health problems suggests that about one in every five children has an emotional or behavioural problem as well as feelings of depression and sadness, and it seems the problems are getting worse (Offord et al., 1992). These health concerns are likely to need greater attention through the next decade. Moreover, once identified, these problems are poorly treated in the current heath-care system; it is not designed to serve children's complex health needs and rarely includes developmentally appropriate and comprehensive interventions that emphasize community-based prevention strategies (Halfon, Inkelas and Wood, 1995).

Conclusion: Addressing children's mental health will be a major challenge in the next decade. Rates of mental health problems seem to be increasing significantly; therefore there is a need for efforts to be directed toward the development and implementation of community-based mental health promotion and primary prevention strategies and programs that address family functioning, child socialization, parenting skills, effective life skills and support to high-risk families who experience multiple environmental stresses. In addition, it is essential that there are sufficient resources to provide the needed services to prevent, detect and treat mental health problems in the school and in the social and health-care systems.

Suicide

Many youth and children manage to navigate adolescence with relative success. For others, adolescence is a time characterized by low self-esteem, lack of confidence, loneliness and, for some, depression. *The Health of Canada's Children: A CICH Profile* (CICH, 1994) reported that depression or the percentage of those reporting that they felt depressed once a week or more was widespread and varied considerably by gender and age. Many children have mental health problems that have been identified clinically. They report feelings of stress, low self-esteem, unhappiness with their body, and loneliness. Deaths from suicide are increasing and the rate of attempted suicide is estimated to be 10 to 100 times higher than for completed suicides (Federal/Provincial/Territorial Committee on Population Health, 1996; Dyck, Mishara and White, 1998). Of particular concern are persistently high rates of suicide among young men and Aboriginal youth — they are nearly five times higher than the national average (Health Canada, 1997). These rates are a clear indicator of distress experienced by youth today.

The number of reported suicides likely represent the tip of the iceberg; suicide deaths are currently under-reported due to a tendency to group them under accidental deaths or deaths due to unknown causes. To prevent increases in suicide, depression or other manifestation of adolescent turmoil, appropriate measures must be taken. One example of stress experienced by youth is the increasing uncertainty that their education will someday lead to employment. Youth need to be given the opportunity to be included in the real world beyond the school. Some of them can vote, they can drive, yet there are few opportunities to actively participate in community activities with adults (Ontario Premier's Council on Health, 1997).

Conclusion: Measures need to be developed that would train professionals and individuals who work with children and youth in both the identification of young people with mental and emotional health problems and their referral to appropriate programs and services. Concomitantly, efforts will need to be made to provide accessible and relevant interventions that can reduce mental health problems and suicide among youth, particularly in groups at high risk such as young men and Aboriginal peoples. Youth need to be involved in planning and developing these services, interventions and supports in the settings where they live, learn, work and play.

Biology and Genetic Factors

Biological and genetic factors continue to increase in importance partly because of vast improvements in medical sciences and partly because of the remarkable progress in molecular biology, both of which have revolutionized our knowledge about genetics. Improved knowledge and technology has meant that more children survive with chronic disabilities such as cystic fibrosis, muscular dystrophy and cerebral palsy. The number and level of services required to address the needs of these children and their families will likely increase as they seek to live normal lives. Consequently, there may be an increased demand for society to create an environment that is as integrated and stimulating as possible to help families support the optimal development of their children.

In addition, improved knowledge of early fetal and infant development is likely to lead us toward identifying more and more genetic and biological links with developmental disabilities. Accordingly, we need to set safeguards against the potential dangers of genetic screening and genetic therapy. Possible concerns include freedom of choice of the individual and privacy. The ethical and legal aspects of confidentiality should be addressed because genetic information is not only an individual matter — it is also a family concern.

Conclusion: There will be a need to consult on and develop safeguards against the potential dangers of genetic screening and genetic therapy which are accepted within society and address possible concerns, such as freedom of choice and privacy as well as the ethical and legal aspects of confidentiality. In addition, the demand for services required to address the needs of these children and their families will likely increase as they seek to live normal lives and participate in society.

Health Services and Social Services

In Canada, the management and delivery of health and social services is the responsibility of each province or territory. The federal government's role in these sectors involves the setting and administration of national standards for the health system (e.g. the *Canada Health Act*), assisting in the financing of provincial and territorial health and social services through fiscal transfers (e.g. the Canada Health and Social Transfer), fulfilling other functions for which it is constitutionally responsible, and participating in other health-related functions such as health protection, health promotion and disease prevention.

Canada's health and social service systems provide a wide range of services that are designed to promote and maintain health. However, both systems will continue to experience a wide range of challenges, including economic restrictions and changing federal/provincial/territorial demands, as the trend towards a coordinated, multi-sectoral approach in addressing children's health and well-being is adopted. As services are increasingly centralized, children and youth and their families will hopefully be treated more as a complete family unit or as a complete person, rather than compartmentalizing them according to a specific desired service. In doing so, these sectors will need to agree on definitions of shared problems, define the process of working together, and develop multi-skilled service providers. More importantly, as systems of service delivery become more integrated during the restructuring process, mechanisms through which to monitor the efficiency and effectiveness of these newly configured systems will need to be established and the results reported to the public.

Conclusion: Ultimately, our health and social service systems must make a difference at the front line of service delivery and support the healthy development of all children and youth in Canada and their families. Measures need to be promoted that encourage and ensure collaboration among the many sectors addressing the needs of children and their families in an integrated, holistic manner.

Culture

Culture is an important, though often ignored, determinant of health. Influences ranging from barriers to needed services and loss or devaluation of language and culture to racism and discrimination have direct impacts on health outcomes; these have been outlined in Chapter 11. What is apparent upon review of this chapter is the lack of available information regarding cultural impacts on health outcomes. Given Canada's increasingly diverse population, cultural influences on health will remain an important consideration for practitioners, researchers and policy makers within many sectors.

Conclusion: Canada's challenge in the future will be to ensure that culture, as a determinant of health, receives equal consideration beside other determining influences. An important first step requires that adequate data and information be collected and made available. This will allow us to broaden our understanding of cultural influences on health outcomes and take appropriate actions toward maintaining and improving health outcomes for all children and youth in Canada. All those working with children, young people and their families need to be aware of their own cultural values and beliefs, and be conscious of and open to learning about, understanding and accepting those of the families with whom they work.

Gender

Developing a gender identity is a very complex process, which begins in the womb and evolves throughout childhood. Although a person's sex is biologically determined and hormonally regulated, his or her concept of gender and gender roles is influenced through the interaction of peers, parents, media and other socio-cultural factors.

Behaviour

It may be that the gender roles we communicate to young people are in themselves a source of stress. For example, social expectations about "male" behaviour include aggression and risk taking, both of which are evidenced in drinking and driving; deviant behaviour is seen as "manly."

Body image

A similar case could be argued for the pressure to be feminine and "beautifully thin"; hence the prevalence of anorexia and depression (Tipper, 1997). Society's obsession with weight and appearance and the value society places on female thinness — a value which is confirmed by the appearance of ultra-thin models and actresses on television, the fashion industry, and a barrage of diet commercials — is very powerful. Eating disorders have become a common problem in some industrialized countries. In Canada, it is unclear exactly what percentage of young women suffer from these disorders. It is known, however, that 41% of 13-year-old girls and 44% of 15-year-old girls felt that they needed to lose weight or were dieting to lose weight (King, Boyce and King, 1999). Once considered rare, eating disorders such as overeating, bulimia and anorexia nervosa are likely to continue to increase as long as the media continue to promote thinness as a desired state and society accepts the message.

Conclusion: Measures need to be adopted at all ages and stages of development and by all those working with children and young people to encourage them to develop a positive, healthy sense of self and healthy attitudes about their bodies. Young people need to be encouraged to critically examine the gender roles and stereotypes of their culture groups, society in general and the settings in which they function daily such as family, school, media, work and recreation.

Looking Ahead

It is important to recognize that children determine neither the circumstances of their birth nor the environments in which they grow up. With this in mind, it is important to realize that the determinants of health described in this report shape children's health, health beliefs and their behaviour. One of the most effective ways to promote healthy child development is through the support of entire communities.

The challenges were introduced with a number of overarching issues that raise important policy and research issues as we address child health in the next century. Other future challenges can be seen by examining the trends noted across the entire range of determinants. Health, according to the determinants of health framework, is determined by the complex interaction of individual characteristics, social and economic factors and the physical environment. Strategies to improve the health of children must therefore address all the determinants of health. There is increasing recognition that improving health is a collective responsibility that requires a broad, coordinated approach to children's policy issues.

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